

PRODUCT NAME: Barite

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Safety Data Sheet No: 5028EC

1. Identification of the Substances and Details of the Company

Product Description: Barium Sulphate

Manufacturer's Name and Address:

Clear Solutions International Limited
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Date Prepared: January 05, 2004

Date Reviewed: July 2013

Telephone: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Not regarded as a health or environmental hazard under current legislation.

Human Health

IARC Monographs, Vol 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group 1. Because of quantity and composition, the health hazard is small.

3. Composition/Information on Ingredients

Name	EC No	CAS No	Content	Classification
Barium Sulphate	231-784-4	7727-43-7	60-100%	-
Quartz, Crystalline Silica	238-878-4	14808-60-7	5-10%	XN;R20

Composition Comments

The data shown is in accordance with the latest EC Directives. Barite is a naturally occurring mineral. This product contains small quantities of quartz. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. Because of quantity and composition the health hazard is small.

4. First Aid Measures

Eye Contact: Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention if discomfort continues.

Ingestion: Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. In case of discomfort, seek medical advice.

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Skin: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Inhalation: Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

5. Fire Fighting Measures

Extinguishing Media

The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

Protective Measures in Fire

Self contained breathing apparatus and full protective clothing must be worn in case of fire

6. Accidental Release Measures

Personal Protection: Wear protective equipment as described under Section 8 and follow the advice for safe handling and use given under Heading 7.

Spill Clean up Methods: Shovel into dry containers. Cover and move the containers. Flush the area with water.

Environmental Precautions: Do not allow to enter drains, sewers or watercourses.

7. Handling and Storage

Normal precautions for the handling of chemicals should be observed.

Usage Precautions: Avoid handling which leads to dust formation. Provide good ventilation. Mechanical ventilation or local exhaust ventilation may be required. Do not use contact lenses.

Storage Precautions: Store in tightly closed original container in a dry, cool and well-ventilated place.

8. Exposure Controls/Personal Protection

Name	Std	LT-ppm	LT-mg/m ³	ST-ppm	ST-mg/m ³
BARIUM SULPHATE	WEL		4 mg/m ³		
QUARTZ, CRYSTALLINE SILICA	WEL		0.1 mg/m ³		

Ingredients Comments WEL = Workplace Exposure Limits

Engineering Measures

Provide adequate general and local exhaust ventilation.

Respiratory Equipment

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Respiratory protection must be used if air contamination exceeds acceptable level. Dust filter P3 (for especially fine dust/powder).

Hand Protection No specific hand protection noted, but gloves may still be advisable. For prolonged or repeated skin contact use suitable protective gloves, rubber or plastic.

Eye Protection

Wear dust resistant safety goggles where there is danger of eye contact.

Other Protection

Wear appropriate clothing to prevent repeated or prolonged skin contact. Provide eyewash station.

9. Physical and Chemical Properties

Appearance:	Powder, dust
Colour:	Tan to Grey
Odour:	Odourless or no characteristic odour
Solubility:	Insoluble in water
Melting Point (°C):	1580
Bulk Density:	1920 – 2400 kg/m ³
Relative Density:	4.2 – 4.25 20°C

10. Stability and Reactivity

Stability :	Stable under normal temperature conditions.
Conditions To Avoid :	Avoid wet and humid conditions.

11. Toxicological Information

Inhalation :	Dust may irritate respiratory system or lungs. Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Ingestion :	May cause discomfort if swallowed.
Skin Contact :	Powder may cause mechanical irritation to skin.
Eye Contact :	Particles in the eyes may cause irritation and smarting.
Health Warnings :	This product contains small quantities of quartz. Prolonged inhalation of high concentrations may damage respiratory system. Because of quantity and composition, the health hazard is small.

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12. Ecological Information

Ecotoxicity : This material is a naturally occurring mineral. OSPAR have defined this chemical as PLONOR.

13. Disposal Considerations

Disposal Methods : Recover and reclaim or recycle, if practical. Dispose of waste and residues in accordance with local authority requirements.

14. Transport information

General : The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID)

15. Regulatory Information

Risk Phrases : NC Not classified

Safety Phrases : NC Not classified

UK Regulatory References :

Chemicals (Hazard Information and Packaging) Regulations

EU Directives Reach: With respect to minerals, Article 2 § 7 (b) and Annex V point 7 explicitly exempt from registration and evaluation “minerals which occur in nature, if they are not chemically modified.” This product is exempt from registration. Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC.

Guidance Notes : Workplace Exposure Limits EH40.

16. Other Information

General Information : HMIS Health – 1 HMIS Flammability – 0 HMIS Physical Hazard – 0 E – Safety Glasses, Gloves, Dust Respirator

Information Sources : Material Safety Data Sheet, Misc. manufacturers. Micromedex.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

Safety Data Sheet No: 5025EC

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1. Identification of the Substances and Details of the Company

Product Description: Limestone and Dolomite

Date Prepared:

Suppliers Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754
Fax: +44 (0) 1939 232399

2. Hazards Identification

Statement of Hazards: The products contain no substances classified as being hazardous to health according to EC directive 1999/45/EC.).

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Calcium Carbonate CaCO_3
Calcium Magnesium Carbonate $\text{CaMg}(\text{CO}_3)_2$

HMIS Rating: Health – 2, Flammability - 0, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

CHEMICAL IDENTITY

CAS No.

Calcium Carbonate

1317-65-3

The products contain no components classified as dangerous according to EC directive 1999/45/EC.

Calcium Magnesium Carbonate

16389-88-1

The products contain no components classified as dangerous according to EC directive 1999/45/EC.

4. First Aid Measures

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

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When contacting a physician, take this safety datasheet with you.

Skin: Wash skin with plenty of soap and water.
Inhalation: Remove from exposure into fresh air. Dust in throat and nasal passages should clear spontaneously. In case of serious exposure seek medical advice.
Eyes: Do not rub eyes. Remove any contact lenses and open the eyelid(s) widely to flush eye(s) immediately by thoroughly rinsing with clean water. In case of irritation seek medical advice.
Ingestion: Wash out mouth with clean water. In case of discomfort, seek medical advice.

5. Fire Fighting Measures

Limestone and Dolomite pose no fire-related hazards.

Flash Point (*Method Used*): Not Applicable. Not Combustible.
Auto ignition Temperature: Not Applicable
Sensitivity to Mechanical Impact: None
Fire Fighting Extinguishing Media: Carbon dioxide, dry powder, foam, or water.
Fire Fighting Equipment: No need for specialist protective equipment for fire fighters.
Fire and Explosion Hazards: None
Hazardous Decomposition Products: Above 825oC Carbon dioxide (CO2) evolution.
Emergency Response Guidebook Information: No ERG # indicated.

6. Accidental Release Measures

Personal Protection: Wear protective equipment as described under Heading 8 and follow the advice for safe handling and use given under Heading 7. Emergency procedures are not required.
Methods for Cleaning Up: Recover the spillage in a dry state if possible. Try to minimise airborne dispersion. Sweep and shovel material into suitable containers for disposal before disposal as described under Heading 13.
Environmental Precautions: No special precautions required but avoid whenever possible washing Limestone or Dolomite powders down sewage and drainage systems or into bodies of water (e.g. streams).

7. Handling and Storage

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

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Normal precautions for the handling of chemicals should be observed.

Precautions:

Storage Information:

Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Store in a dry, well ventilated area. Keep containers tightly closed. Do not store near acids. Bagged product should be stacked in a stable manner.

8. Exposure Controls/Personal Protection

Exposure limit values:

Workplace exposure Limits (WEL). 8hr Time Weighted Average (TWA) values:

Dust, total inhalable :WEL 10mg/m³ 8h TWA

Dust, respirable :WEL 4mg/m³ 8h TWA

Skin Protection:

The use of gloves is recommended for handling aggregates, granules and powders.

Long-sleeved protective clothing is recommended when working with powders and granules.

Respiratory Protection:

Dust masks should be used when handling powder or granular material. Suitable respiratory protection should be worn to ensure that personal exposure is less than the WEL.

Additional Information:

Eye protection is recommended. Wear approved glasses or Safety goggles according to EN 166 to prevent contact with eyes.

9. Physical and Chemical Properties

General information

	Limestone	Dolomite
Physical form	Powder/granules/chippings	Powder/granules/chippings

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Colour	Grey white/white	Buff brown
Odour	None	None
pH (saturated solution)	8.5 – 9.5	8.5 – 9.5
Boiling Range/Point	Not applicable	Not applicable
Melting Point	1339oC	1339oC
Decomposition Temperature	above 825 oC	above 825 oC
Flash Point (PMCC)	Not applicable	Not applicable
Auto-flammability	Not auto-flammable	Not auto-flammable
Flammability	Non-flammable	Non-flammable
Explosive Properties	Stable under normal conditions	Stable under normal conditions
Vapour Pressure	Negligible vapour pressure at ambient conditions	Negligible vapour pressure at ambient conditions
Relative Density	2.6 – 2.8 g/cm3	2.6 – 2.8 g/cm3
Solubility in Water	0.014 g/l (20 oC) 0.018 g/l (75 oC)	0.014 g/l (20 oC) 0.018 g/l (75 oC)

10. Stability and Reactivity

Stability: Stable under normal conditions

Conditions to Avoid: Materials to avoid - Acids. Reacts to form Carbon dioxide (CO₂).

Hazardous Decomposition Products: Carbon Dioxide (CO₂) – oxygen displacement

11. Toxicological Information

Acute Toxicity: LD50/oral/rat = >5000mg/kg. Not classified as harmful if swallowed

Local Effects: Mild irritation of eyes

Chronic Toxicity –Carcogenic Mutagenic : No none effects

12. Ecological Information

Limestone or dolomite are natural minerals of the earth and in a dissolved state, the substance(s) are natural and indispensable components of natural waters. Therefore, unfavourable effects to the

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

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environment may be excluded.

Concentrated suspensions of limestone or dolomite in natural waters may have an unfavourable effect on water organisms (disturbance of the micro flora and fauna in the sediment and the subsequent existence of higher water organisms).

Mobility:

Limestone or dolomite are not volatile but might become airborne during handling operations.

Persistence and degradability:

Calcium carbonate or Calcium magnesium carbonate cannot biodegrade.

Bioaccumulative potential/Results of PBT assessment/Other adverse effects:

No data currently available.

13. Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14. Transport information

Not classified as hazardous for transport

Road Transport ADR/RID: Not restricted

Inland Navigation AND/ADNR: Not restricted

Maritime Transport IMDG: Not restricted

Air Transport ICAO/IATA: Not restricted.

15. Regulatory Information

Classification and labelling of limestone according to 1999/45/EC :

Not classified as hazardous for supply in the meaning of EU Directives

R-phrases(s): None S-phrases(s): None

National legislation/requirements:

Health and Safety at Work etc Act 1974

HSE Guidance Note EH40 (Workplace Exposure Limits)

COSHH regulations 2002

Environmental protection act 1990

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

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16. Other Information

Reference listings

TSCA Listing	TSCA Inventory listed under CAS No. 1317-65-3 (Limestone) and CAS No. 16389-88-1 (Dolomite)
FDA List Number	Calcium carbonate/Limestone and Calcium magnesium carbonate/Dolomite are GRAS
DSL/NDL Listing	Limestone and Dolomite are exempt from the PDSL (naturally occurring substance)
AICS Listing	ACOIN edition 92 listed under CAS No. 1317-65-3 (Limestone) and CAS No. 16389-88-1 (Dolomite)
MITI Number	1-122-122

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1. Identification of the Substances and Details of the Company

Product Description: Barium Sulphate

Manufacturer's Name and Address:

Clear Solutions International Limited
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Date Prepared: January 05, 2004

Date Reviewed: July 2013

Telephone: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Not regarded as a health or environmental hazard under current legislation.

Human Health

IARC Monographs, Vol 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group 1. Because of quantity and composition, the health hazard is small.

3. Composition/Information on Ingredients

Name	EC No	CAS No	Content	Classification
Barium Sulphate	231-784-4	7727-43-7	60-100%	-
Quartz, Crystalline Silica	238-878-4	14808-60-7	5-10%	XN;R20

Composition Comments

The data shown is in accordance with the latest EC Directives. Barite is a naturally occurring mineral. This product contains small quantities of quartz. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. Because of quantity and composition the health hazard is small.

4. First Aid Measures

Eye Contact: Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention if discomfort continues.

Ingestion: Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. In case of discomfort, seek medical advice.

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Skin: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.

Inhalation: Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

5. Fire Fighting Measures

Extinguishing Media

The product is non-combustible. Use fire-extinguishing media appropriate for surrounding materials.

Protective Measures in Fire

Self contained breathing apparatus and full protective clothing must be worn in case of fire

6. Accidental Release Measures

Personal Protection: Wear protective equipment as described under Section 8 and follow the advice for safe handling and use given under Heading 7.

Spill Clean up Methods: Shovel into dry containers. Cover and move the containers. Flush the area with water.

Environmental Precautions: Do not allow to enter drains, sewers or watercourses.

7. Handling and Storage

Normal precautions for the handling of chemicals should be observed.

Usage Precautions: Avoid handling which leads to dust formation. Provide good ventilation. Mechanical ventilation or local exhaust ventilation may be required. Do not use contact lenses.

Storage Precautions: Store in tightly closed original container in a dry, cool and well-ventilated place.

8. Exposure Controls/Personal Protection

Name	Std	LT-ppm	LT-mg/m ³	ST-ppm	ST-mg/m ³
BARIUM SULPHATE	WEL		4 mg/m ³		
QUARTZ, CRYSTALLINE SILICA	WEL		0.1 mg/m ³		

Ingredients Comments WEL = Workplace Exposure Limits

Engineering Measures

Provide adequate general and local exhaust ventilation.

Respiratory Equipment

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Respiratory protection must be used if air contamination exceeds acceptable level. Dust filter P3 (for especially fine dust/powder).

Hand Protection No specific hand protection noted, but gloves may still be advisable. For prolonged or repeated skin contact use suitable protective gloves, rubber or plastic.

Eye Protection

Wear dust resistant safety goggles where there is danger of eye contact.

Other Protection

Wear appropriate clothing to prevent repeated or prolonged skin contact. Provide eyewash station.

9. Physical and Chemical Properties

Appearance:	Powder, dust
Colour:	Tan to Grey
Odour:	Odourless or no characteristic odour
Solubility:	Insoluble in water
Melting Point (°C):	1580
Bulk Density:	1920 – 2400 kg/m ³
Relative Density:	4.2 – 4.25 20°C

10. Stability and Reactivity

Stability :	Stable under normal temperature conditions.
Conditions To Avoid :	Avoid wet and humid conditions.

11. Toxicological Information

Inhalation :	Dust may irritate respiratory system or lungs. Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Ingestion :	May cause discomfort if swallowed.
Skin Contact :	Powder may cause mechanical irritation to skin.
Eye Contact :	Particles in the eyes may cause irritation and smarting.
Health Warnings :	This product contains small quantities of quartz. Prolonged inhalation of high concentrations may damage respiratory system. Because of quantity and composition, the health hazard is small.

PRODUCT NAME: Barite

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12. Ecological Information

Ecotoxicity : This material is a naturally occurring mineral. OSPAR have defined this chemical as PLONOR.

13. Disposal Considerations

Disposal Methods : Recover and reclaim or recycle, if practical. Dispose of waste and residues in accordance with local authority requirements.

14. Transport information

General : The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID)

15. Regulatory Information

Risk Phrases : NC Not classified

Safety Phrases : NC Not classified

UK Regulatory References :

Chemicals (Hazard Information and Packaging) Regulations

EU Directives Reach: With respect to minerals, Article 2 § 7 (b) and Annex V point 7 explicitly exempt from registration and evaluation “minerals which occur in nature, if they are not chemically modified.” This product is exempt from registration. Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC.

Guidance Notes : Workplace Exposure Limits EH40.

16. Other Information

General Information : HMIS Health – 1 HMIS Flammability – 0 HMIS Physical Hazard – 0 E – Safety Glasses, Gloves, Dust Respirator

Information Sources : Material Safety Data Sheet, Misc. manufacturers. Micromedex.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

Safety Data Sheet No: 5025EC

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1. Identification of the Substances and Details of the Company

Product Description: Limestone and Dolomite

Date Prepared:

Suppliers Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754
Fax: +44 (0) 1939 232399

2. Hazards Identification

Statement of Hazards: The products contain no substances classified as being hazardous to health according to EC directive 1999/45/EC.).

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Calcium Carbonate CaCO_3
Calcium Magnesium Carbonate $\text{CaMg}(\text{CO}_3)_2$

HMIS Rating: Health – 2, Flammability - 0, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

CHEMICAL IDENTITY

CAS No.

Calcium Carbonate

1317-65-3

The products contain no components classified as dangerous according to EC directive 1999/45/EC.

Calcium Magnesium Carbonate

16389-88-1

The products contain no components classified as dangerous according to EC directive 1999/45/EC.

4. First Aid Measures

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

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When contacting a physician, take this safety datasheet with you.

Skin: Wash skin with plenty of soap and water.
Inhalation: Remove from exposure into fresh air. Dust in throat and nasal passages should clear spontaneously. In case of serious exposure seek medical advice.
Eyes: Do not rub eyes. Remove any contact lenses and open the eyelid(s) widely to flush eye(s) immediately by thoroughly rinsing with clean water. In case of irritation seek medical advice.
Ingestion: Wash out mouth with clean water. In case of discomfort, seek medical advice.

5. Fire Fighting Measures

Limestone and Dolomite pose no fire-related hazards.

Flash Point (*Method Used*): Not Applicable. Not Combustible.
Auto ignition Temperature: Not Applicable
Sensitivity to Mechanical Impact: None
Fire Fighting Extinguishing Media: Carbon dioxide, dry powder, foam, or water.
Fire Fighting Equipment: No need for specialist protective equipment for fire fighters.
Fire and Explosion Hazards: None
Hazardous Decomposition Products: Above 825oC Carbon dioxide (CO2) evolution.
Emergency Response Guidebook Information: No ERG # indicated.

6. Accidental Release Measures

Personal Protection: Wear protective equipment as described under Heading 8 and follow the advice for safe handling and use given under Heading 7. Emergency procedures are not required.
Methods for Cleaning Up: Recover the spillage in a dry state if possible. Try to minimise airborne dispersion. Sweep and shovel material into suitable containers for disposal before disposal as described under Heading 13.
Environmental Precautions: No special precautions required but avoid whenever possible washing Limestone or Dolomite powders down sewage and drainage systems or into bodies of water (e.g. streams).

7. Handling and Storage

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

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Normal precautions for the handling of chemicals should be observed.

Precautions:

Storage Information:

Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Store in a dry, well ventilated area. Keep containers tightly closed. Do not store near acids. Bagged product should be stacked in a stable manner.

8. Exposure Controls/Personal Protection

Exposure limit values:

Workplace exposure Limits (WEL). 8hr Time Weighted Average (TWA) values:

Dust, total inhalable :WEL 10mg/m³ 8h TWA

Dust, respirable :WEL 4mg/m³ 8h TWA

Skin Protection:

The use of gloves is recommended for handling aggregates, granules and powders.

Long-sleeved protective clothing is recommended when working with powders and granules.

Respiratory Protection:

Dust masks should be used when handling powder or granular material. Suitable respiratory protection should be worn to ensure that personal exposure is less than the WEL.

Additional Information:

Eye protection is recommended. Wear approved glasses or Safety goggles according to EN 166 to prevent contact with eyes.

9. Physical and Chemical Properties

General information

	Limestone	Dolomite
Physical form	Powder/granules/chippings	Powder/granules/chippings

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Colour	Grey white/white	Buff brown
Odour	None	None
pH (saturated solution)	8.5 – 9.5	8.5 – 9.5
Boiling Range/Point	Not applicable	Not applicable
Melting Point	1339oC	1339oC
Decomposition Temperature	above 825 oC	above 825 oC
Flash Point (PMCC)	Not applicable	Not applicable
Auto-flammability	Not auto-flammable	Not auto-flammable
Flammability	Non-flammable	Non-flammable
Explosive Properties	Stable under normal conditions	Stable under normal conditions
Vapour Pressure	Negligible vapour pressure at ambient conditions	Negligible vapour pressure at ambient conditions
Relative Density	2.6 – 2.8 g/cm3	2.6 – 2.8 g/cm3
Solubility in Water	0.014 g/l (20 oC) 0.018 g/l (75 oC)	0.014 g/l (20 oC) 0.018 g/l (75 oC)

10. Stability and Reactivity

Stability: Stable under normal conditions

Conditions to Avoid: Materials to avoid - Acids. Reacts to form Carbon dioxide (CO₂).

Hazardous Decomposition Products: Carbon Dioxide (CO₂) – oxygen displacement

11. Toxicological Information

Acute Toxicity: LD50/oral/rat = >5000mg/kg. Not classified as harmful if swallowed

Local Effects: Mild irritation of eyes

Chronic Toxicity –Carcogenic Mutagenic : No none effects

12. Ecological Information

Limestone or dolomite are natural minerals of the earth and in a dissolved state, the substance(s) are natural and indispensable components of natural waters. Therefore, unfavourable effects to the

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

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environment may be excluded.

Concentrated suspensions of limestone or dolomite in natural waters may have an unfavourable effect on water organisms (disturbance of the micro flora and fauna in the sediment and the subsequent existence of higher water organisms).

Mobility:

Limestone or dolomite are not volatile but might become airborne during handling operations.

Persistence and degradability:

Calcium carbonate or Calcium magnesium carbonate cannot biodegrade.

Bioaccumulative potential/Results of PBT assessment/Other adverse effects:

No data currently available.

13. Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14. Transport information

Not classified as hazardous for transport

Road Transport ADR/RID: Not restricted

Inland Navigation AND/ADNR: Not restricted

Maritime Transport IMDG: Not restricted

Air Transport ICAO/IATA: Not restricted.

15. Regulatory Information

Classification and labelling of limestone according to 1999/45/EC :

Not classified as hazardous for supply in the meaning of EU Directives

R-phrases(s): None S-phrases(s): None

National legislation/requirements:

Health and Safety at Work etc Act 1974

HSE Guidance Note EH40 (Workplace Exposure Limits)

COSHH regulations 2002

Environmental protection act 1990

PRODUCT NAME: Calcium Carbonate & Calcium Magnesium Carbonate

Safety Data Sheet No: 5025EC

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Manual Handling Operations Regulations

16. Other Information

Reference listings

TSCA Listing	TSCA Inventory listed under CAS No. 1317-65-3 (Limestone) and CAS No. 16389-88-1 (Dolomite)
FDA List Number	Calcium carbonate/Limestone and Calcium magnesium carbonate/Dolomite are GRAS
DSL/NDL Listing	Limestone and Dolomite are exempt from the PDSL (naturally occurring substance)
AICS Listing	ACQIN edition 92 listed under CAS No. 1317-65-3 (Limestone) and CAS No. 16389-88-1 (Dolomite)
MITI Number	1-122-122

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Citric Acid Monohydrate

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Safety Data Sheet No: 5012EC

1. Identification of the Substances and Details of the Company

Company Name and Address:	Date Prepared:
Clear Solutions International Ltd	Date Reviewed: July 2013
Unit B3, Wem Industrial Estate	
Soulton Road	
Wem	
Shropshire SY4 5SD	Tel: +44 (0) 1939 235754
	Fax: +44 (0) 1939 232399
ENGLAND	

2. Hazards Identification

No significant hazard	
Skin Contact	There may be mild irritation at the site of contact.
Eye Contact	There may be irritation and redness.
Inhalation	May cause irritation to the respiratory system.
Ingestion	Harmful if swallowed in large quantities.

3. Composition/Information on Ingredients

Chemical Name	Citric Acid Monohydrate
CAS Number	5949-29-1
EINECS Number	201-069-1
Synonyms	2-Hydroxy-Propane Tricarboxylic acid

4. First Aid Measures

Skin Contact	Rinse thoroughly with soap & water and seek medical attention if symptoms persist.
Eye Contact	Bathe the eye with running water for 15 minutes. Seek medical attention if irritation persists.
Inhalation	Remove from exposure.
Ingestion	After large amounts give antacid or milk. Obtain medical attention.

5. Fire Fighting Measures

Extinguishing media	Use extinguishing media appropriate to the surrounding conditions. In combustion emits toxic fumes. Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.
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PRODUCT NAME: Citric Acid Monohydrate

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Safety Data Sheet No: 5012EC

6. Accidental Release Measures

Personal precautions	When handling observe usual precautionary measures for chemicals.
Clean up procedures	Transfer to a closable, labelled salvage container for disposal by an appropriate method. Wash the spillage site with large amounts of water.

7. Handling and Storage

Handling	No special handling precautions are necessary.
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8. Exposure Controls/Personal Protection

Hand protection	Protective gloves.
Skin protection	Wear protective clothing.
Eye protection	Wear safety goggles.

9. Physical and Chemical Properties

State	Crystalline powder
Colour	White
Odour	Odourless
Oxidising	Non-oxidising (by EC criteria)
Solubility in water	162g per 100ml water @ 25 deg C
Melting point/range °C	153
Vapour pressure	6.8

10. Stability and Reactivity

Stability	Stable under normal conditions.
Conditions to avoid	Heat.
Materials to avoid	No specific materials to avoid but DO NOT MIX WITH OTHER CHEMICALS.
Hazardous	In combustion emits toxic fumes.
Decomposition products.	

11. Toxicological Information

Acute toxicity	CITRIC ACID MONOHYDRATE IPR RAT LD50 883 mg/kg ORL MUS LD50 5040 mg/kg ORL RAT LD50 11.7 g/kg SCU RAT LD50 5500 mg/kg
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PRODUCT NAME: Citric Acid Monohydrate

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Safety Data Sheet No: 5012EC

12. Ecological Information

Mobility	Soluble in water.
Persistence and degradability	Rapidly biodegradable.
Bioaccumulative potential	No bioaccumulation potential.
Other adverse effects	Negligible ecotoxicity.

13. Disposal Considerations

Dispose of through approved waste disposal operatives.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14. Transport information

ADR/RID IMDG/IMO IATA/ICAO

15. Regulatory Information

Hazard Symbols: No significant hazard.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions, which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

Note: The regulatory information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Clear Solutions International Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and it is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

16. Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: CLEAR-GELTM

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Safety Data Sheet No: 5019EC

1. Identification of the Substances and Details of the Company

Suppliers Name and Address:	Date Prepared: January 2004
Clear Solutions International Ltd	Date Reviewed: July 2013
Unit B3, Wem Industrial Estate	
Soulton Road	
Wem	
Shropshire SY4 5SD	Tel: +44 (0) 1939 235754
ENGLAND	Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White powder, slight odor.

Statement of Hazards: This product contains no hazardous ingredients.

Precautionary Measures:

Eye Contact – Dry powder may cause foreign body irritation in some individuals. Solutions are non-irritating.

Skin Contact – Prolonged contact with dry powder may cause drying or chapping of the skin. No evidence of other adverse effects known.

Inhalation – No evidence of adverse effects from available information. However, excessive inhalation of dust can mechanically impede respiration.

Ingestion – No evidence of adverse effects from available information. LD₅₀ is greater than 5000 mg/kg.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Polysaccharide Based Polymer

HMIS Rating: Health – 0, Flammability - 1, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

<u>CHEMICAL IDENTITY</u>		<u>CAS No</u>	<u>OSHA PEL</u> (TWA)	<u>ACGIH TLV</u> (TWA)	<u>DFG MAKs</u> (TWA)
		11138-66-2	NE	NE	NE
Particulates Not Otherwise Specified (PNOS)					
	Inhalable		15 mg/m ³	10 mg/m ³	4 mg/m ³
	Respirable		5 mg/m ³	3 mg/m ³	1.5 mg/m ³

PRODUCT NAME: CLEAR-GEL™

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Safety Data Sheet No: 5019EC

OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE** = Not Established
ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr.
TWA, 40 hr. week
DFG MAK - Federal Republic of Germany Maximum Concentration Values in the Workplace.

4. First Aid Measures

Eye Contact: Flush with water for at least 10 minutes. If irritation occurs, consult a physician.

Ingestion: If illness or adverse effects occur, seek medical attention.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: Move to fresh air.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable (Warning: combustible dust)

Autoignition Temperature: Not Evaluated

Explosive Limits: Not Evaluated

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. However, wetted product presents a slip hazard.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Hazardous Decomposition Products: Not Evaluated

Emergency Response Guidebook Information: No ERG # indicated. Handle as a combustible material.

6. Accidental Release Measures

Accidental Release Measures: Product becomes slippery and difficult to handle when wet; spills are best handled while still dry. Sweep up and collect dry product. Absorb wet product with vermiculite or other inert material. Then water wash area to waste treatment to eliminate slip hazard.

PRODUCT NAME: CLEAR-GELTM

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Safety Data Sheet No: 5019EC

7. Handling and Storage

Precautions: Avoid contact with eyes, skin or clothing. Avoid breathing vapors, mist, fume or dust. Wash thoroughly after handling. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

8. Exposure Controls/Personal Protection

Skin Protection: Avoid unnecessary skin contact.

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator as required to control exposure to respirable particulate.

Personal Protective Equipment: Use appropriate respiratory protection for respirable particulate based on consideration of airborne workplace concentration and duration of exposure arising from intended end use.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour: White to off-white free flowing powder

Odour Threshold: Not Applicable

Freezing Point: Not Applicable

Vapor Pressure (mm Hg): Not Applicable

Vapor Density (Air = 1): Not Applicable

Decomposition Temperature: Not Evaluated

Boiling Point: Not applicable

Melting Point: Not Applicable

Solubility in Water: Complete

Bulk Density: 0.8 g/cm³ (approx.)

Evaporation Rate: Not Applicable

VOC: Not Evaluated

pH: Neutral

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Biodegradable, we are not aware that it poses any toxic threat to the environment.

PRODUCT NAME: CLEAR-GEL™

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Safety Data Sheet No: 5019EC

11.Toxicological Information

Acute Oral Toxicity LD50 (rat): > 5,000 mg/kg. No adverse effects have been noted in chronic feeding studies using laboratory animals and humans

Skin Contact Effects LD50: No data available

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Skin Irritation: Dry powder may cause foreign body irritation in some individuals.

Toxicologically Synergistic Products: None known.

12.Ecological Information

Ecological Information: Product not considered toxic to aquatic organisms.

Fish Toxicity: No data available

13.Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not classified as hazardous for disposal purposes by RCRA Standards.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14.Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

15.Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

PRODUCT NAME: CLEAR-GEL™

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Safety Data Sheet No: 5019EC

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

16. Other Information

Recommended Use: Viscosifier

References: 2001 ACGIH Guide to Occupational Exposure
Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: DEFOAMER

Page 1 of 4

Safety Data Sheet No: 5033EC

1. Identification of the Substances and Details of the Company

Product Description: Liquid Antifoam

Date Prepared: July 2010

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

PRODUCT IDENTIFICATION:

10% Silicone based liquid antifoam

3. Composition/Information on Ingredients

Description: White liquid, almost odourless.

Precautionary Measures:

Eye Contact – May cause temporary redness and inflammation to the eyes.

Skin Contact – Prolonged exposure to the skin should be avoided to prevent possible redness of the skin.

4. First Aid Measures

Eye Contact: Rinse immediately with clean water for at least 15 minutes. Seek medical attention.

Ingestion: Harmless.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water. Seek medical attention if skin irritation is experienced.

Inhalation: Remove the person to fresh air and keep at rest. Seek medical advice if respiratory irritation is experienced or if other symptoms occur.

5. Fire Fighting Measures

Extinguishing Media: For large fires use dry powder, foam or water fog. For small fires use carbon dioxide or sand.

Unsuitable Extinguishing Media: Water jets.

Special Exposure Hazards: Unknown.

PPE for Fire Fighting: Do not breathe fumes. Wear self-contained breathing apparatus.

Fire Fighting Guidance: If possible and without risk, remove unopened containers from exposure to fire.

PRODUCT NAME: DEFOAMER

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Safety Data Sheet No: 5033EC

Otherwise, spray unopened containers with water to keep cool. Do not let fire-fighting water contaminate drains or watercourses.

6. Accidental Release Measures

Personal Precautions: Avoid contact with spilled material or contaminated surfaces. Wear protective clothing as described in Section 8. Whilst dealing with the spillage do not eat, drink or smoke.

Environmental Precautions: Keep people and animals away. Prevent entry into drains, sewers and watercourses (inform the Environmental Agency if this occurs).

Spillages: Contain/absorb spillage in sand/earth or in a suitable inert material. Collect using a non-sparking shovel and place in a plastic/steel drum in a well-ventilated place for subsequent safe disposal (see Section 13).

7. Handling and Storage

Handling: No specific precautions when handling unopened containers; follow any manual handling guidance. Refer to Section 8 if exposure to product is possible. Wash thoroughly with soap and water after handling and before eating, drinking or smoking.

Storage: Store in original packs/containers in a dry, secure ventilated area. PROTECT FROM EXTREME TEMPERATURE AND FROST. As emulsion stability decreases with time we recommend a shelf life of 6 months from drumming.

8. Exposure Controls/Personal Protection

Engineering Controls: Wherever possible exposure should be eliminated or minimized using appropriate engineering controls such as physical containment and good ventilation.

Respiratory Protection: Unlikely to be required in normal use but ensure good ventilation.

Occupational Exposure Standard: None known.

Body Protection: Wear chemical resistant non-absorbent overalls.

Hand Protection: Wear chemical resistant nitrile gloves and change regularly.

Eye Protection: Wear goggles with side protection or visor.

Note (1) Some of the protective equipment may be inappropriate when very small quantities are involved – obtain expert advice before disregarding.

Note (2) Refer also to any COSHH assessment made for this material.

PRODUCT NAME: DEFOAMER

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Safety Data Sheet No: 5033EC

9. Physical and Chemical Properties

Physical State: Liquid

Colour: White

Odour: Almost odourless

Flash Point: Not Applicable

Boiling Range/Point: 100° C

Melting Point: 0° C

pH: 6 - 8

S.G @ 15° C: Ca 1.00

10. Stability and Reactivity

Conditions to Avoid: PROTECT FROM EXTREME TEMPERATURE AND FROST.

Stability: Stable in normal conditions.

Materials to Avoid: Avoid strong acids; avoid materials which react with water.

11. Toxicological Information

Acute Toxicity: INHALATION: None. SKIN AND EYE CONTACT: In experimental tests, in spite of the high pH, Europrene latex has not resulted to be irritant or corrosive. INGESTION: None.

Carcinogenicity: No.

Mutagenicity: No.

Reprotoxicity: No.

12. Ecological Information

Degradability: No data available.

Bio-accumulation: No data available.

Aquatic Toxicity: No data available.

13. Disposal Considerations

Description and Handling of Residues: Latex surplus and residues are to be handled with the precautionary measures specified in headings 7 and 8.

Appropriate Methods of Disposal: Coagulate the particles in suspension either with aluminium sulphate or calcium chloride. Decant and neutralize contaminated water prior to send to water treatment. Solid residues may be disposed at approved land-fill pits or incinerated, in accordance with the requirements of the local waste disposal authorities and national regulations.

PRODUCT NAME: DEFOAMER

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Safety Data Sheet No: 5033EC

14. Transport information

ADR/RID: Not classified as dangerous for transport.

CDG-CPL: Not classified as dangerous for transport.

IMDG/IMO: Not classified as dangerous for transport.

IATA/ICAO: Not classified as dangerous for transport.

15. Regulatory Information

Hazard Symbols: None

Designated Name: Clear Solutions International Ltd DEFOAMER

Risk Phrases: None.

Safety Phrases: None.

16. Other Information

Date this safety sheet generated: 6th July 2010

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

1. Identification of the Substances and Details of the Company

Company Name and Address:	Date Prepared:
Clear Solutions International Ltd	Date Reviewed: July 2013
Unit B3, Wem Industrial Estate	
Soulton Road	
Wem	Tel: +44 (0) 1939 235754
Shropshire SY4 5SD	Fax: +44 (0) 1939 232399
ENGLAND	

2. Hazards Identification

Description: Clear red liquid with mild odour.

Statement of Hazards: This product contains no hazardous ingredients.

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Avoid prolonged or repeated inhalation of mists or sprays and skin contact. Very slippery when wet.

Primary Route(s) of Entry: Skin contact.

Signs and Symptoms of Exposure: Eye contact may produce irritation and/or redness. Inhaled mist may cause some respiratory irritation. Prolonged and frequent skin contact may lead to rashes or dermatitis.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH

Medical Conditions Aggravated by Exposure: None known.

Target Organ(s): Not Applicable

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Proprietary mixture of anionic and nonionic surfactants

HMIS Rating: Health – 0, Flammability - 0, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

<u>CHEMICAL IDENTITY</u>	<u>CAS No.</u>	<u>OSHA PEL</u> (TWA)	<u>ACGIH TLV</u> (TWA)	<u>UK HSE EH 40</u> (TWA)
Liquid solution of nonionic surfactants	Mixture	NE	NE	NE

OSHA PEL- OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average

NE = Not Established

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr. TW, 40 hr. week

UK HSE EH 40 - UK Health and Safety Executive / Environmental Health Occupational Exposure Limits, 8 h TWA

4. First Aid Measures

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: If mists or sprays are inhaled, move to fresh air and clear any blocked airways. Keep casualty at rest and consult physician.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Consult physician if irritation occurs.

Ingestion: If illness or adverse effects occur, seek medical attention.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable. Non-flammable liquid.

Autoignition Temperature: Not Applicable

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Water can be used to cool containers adjacent to fire.

Fire Fighting Equipment: No special procedures.

Fire and Explosion Hazards: Pressure may develop in closed containers if temperatures over 190°F are achieved.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, ammonia and smoke.

Emergency Response Guidebook Information: No ERG # indicated.

6. Accidental Release Measures

Personal Protection: Use personal protective equipment. Breathing apparatus required only in a fire situation.

Methods for Cleaning Up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up and shovel into suitable containers for disposal.

Environmental Precautions: Do not flush into surface water or sanitary sewer system.

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

7. Handling and Storage

Precautions: Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

8. Exposure Controls/Personal Protection

Skin Protection:

Plastic or rubber gloves are recommended

Respiratory Protection:

Under normal conditions, respiratory protection is not required. However, if strong fumes are present, use a half or full face mask with an organic vapor filter (European standard EN 143).

Engineering Controls:

Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information:

Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour:	Clear red liquid with mild odour.
Odour Threshold:	Not Determined
Solubility in Water:	Complete
Vapor Pressure (mm Hg):	Not Determined
Vapor Density (Air = 1):	Not Applicable
Evaporation Rate:	Not Applicable
Boiling Point:	Approx. 88°C
Melting Point:	Not Applicable
pH as Supplied:	Not Applicable
Specific Gravity:	1.08 g/cm ³

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

10. Stability and Reactivity

Stability: Stable at ambient temperatures.

Conditions to Avoid: Avoid extremes of temperature, especially frost and freezing conditions.

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Thermal decomposition or combustion may produce oxides of carbon and nitrogen, various hydrocarbons, and/or ammonia which may be irritating or harmful.

Incompatibility: Strong oxidants such as liquid chlorine, enriched gaseous or liquid oxygen, and sodium or calcium hypochlorite.

11. Toxicological Information

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

12. Ecological Information

Ecological Information: Product is not expected to be harmful to the aquatic environment

13. Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14. Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

15. Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk Phrases: No label required.

European Community Safety Phrases: None

16. Other Information

Recommended Use:

Drilling Fluid Additive

References:

Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Drill-Sorb

Page 1 of 6

Safety Data Sheet No: 5007EC

1. Identification of the Substances and Details of the Company

Product Description: Super Absorbent Polymer

Date Prepared: January 2007

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White, granular solid with little or no odour.

Statement of Hazards: This product contains no hazardous ingredients.

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Avoid prolonged or repeated inhalation of dust or skin contact. Slip hazard when wet.

Primary Route(s) of Entry: Inhalation

Signs and Symptoms of Exposure: May cause slight skin irritation especially after prolonged or repeated exposure. Eye contact may produce slight irritation and/or redness. Inhaled dust may cause respiratory irritation.

Ingestion: Low toxicity product.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

Target Organ(s): Not Applicable

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Cross-linked acrylic co-polymer

MIS Rating: Health - 0, Flammability - 1, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

<u>CHEMICAL IDENTITY</u>	<u>CAS No.</u>	<u>OSHA PEL</u> <u>(TWA)</u>	<u>ACGIH TLV</u> <u>(TWA)</u>	<u>EH 40/2002</u> <u>(TWA)</u>
Cross-linked acrylic co-polymer	76774-25-9	NE	NE	NE
Particulates Not Otherwise Specified (PNOS)		15 mg/m ³	10 mg/m ³	10 mg/m ³
Inhalable		5 mg/m ³	3 mg/m ³	4 mg/m ³

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

Respirable

OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE = Not Established**

ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr. TWA, 40 hr. week

UK EH40/2002 - United Kingdom EH40/2002 Occupational Exposure Limits, 8 hr. TWA

4. First Aid Measures

Ingestion: Do not give an emetic unless directed by a physician. Never give anything by mouth to an unconscious person. If patient is conscious, give a pint of water to drink, with additional cupfuls every 15 minutes.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: Move to fresh air. For all exposures involving irritation, seek medical attention.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable

Autoignition Temperature: Not Evaluated

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. However, wetted product presents a slip hazard.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Hazardous Decomposition Products: Oxides of carbon and nitrogen.

Emergency Response Guidebook Information: No ERG # indicated. Handle as a combustible material.

6. Accidental Release Measures

Accidental Release Measures: Product becomes slippery and difficult to handle when wet; spills are best handled while still dry. Sweep up and collect dry product. Absorb wet product with vermiculite or other inert material. Then water wash area to waste treatment to eliminate slip hazard.

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

7. Handling and Storage

Precautions: Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

8. Exposure Controls/Personal Protection

Skin Protection: PVC or other plastic, vinyl or rubber gloves recommended.

Eye Protection: Safety glasses or goggles recommended,

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator based on consideration of airborne workplace concentration and duration of exposure arising from intended end use.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour:	White granular powder with little or no odour.
Odour Threshold:	Not Applicable
Solubility in Water:	Swells to form a gel in water
Vapor Pressure (mm Hg):	Not Applicable
Vapor Density (Air = 1):	Not Applicable
Decomposition Temperature:	> 200°C
Percent Volatile:	None expected above trace levels
Flammability:	May smolder
Boiling Point:	Not applicable
Melting Point:	Not Applicable
Freezing Point:	Not Applicable
Bulk Density:	0.8 g/cm ³
Evaporation Rate:	Not Applicable
VOC:	Not Evaluated

PRODUCT NAME: Drill-Sorb

Page 4 of 6

Safety Data Sheet No: 5007EC

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Thermal decomposition or combustion may produce oxides of carbon.

Incompatibility: Strong oxidants such as liquid chlorine, enriched gaseous or liquid oxygen, and sodium or calcium hypochlorite.

11. Toxicological Information

Acute Oral Toxicity: Low oral toxicity. By analogy to similar materials, the acute LD50 (rat) is expected to be > 2000 mg/kg.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Skin Irritation: No data available

Intravenous LD50: No data available

Toxicologically Synergistic Products: None known.

12. Ecological Information

Ecological Information: Product not considered toxic to aquatic organisms. By analogy to similar products, the following results are expected:

Fish Toxicity:

LC₅₀ /96 hr / Freshwater fish: 357 mg/l

EC₅₀ /48 hr / Daphnia Magra: 212 mg/l

13. Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not a RCRA regulated hazardous waste.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations. Care must be taken to prevent environmental contamination from the disposal of material, residues, and containers.

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

14. Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

15. Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

16. Other Information

Recommended Use: Drilling fluid solidifier and lost circulation material

References: Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

2001 ACGIH Guide to Occupational Exposure Limits

United Kingdom EH40/2002 Occupational Exposure Limits

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Potassium Chloride (KCl)

Page 1 of 3

Safety Data Sheet No: 5024EC

1. Identification of the Substances and Details of the Company

Company Name and Address:

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Date Prepared: 1st February 2007

Date Reviewed: July 2013

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

No specific risks or hazards to the best of our knowledge

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Potassium Chloride (KCl)

<u>CHEMICAL IDENTITY</u>	<u>CAS No.</u>	<u>% CONC.</u>	<u>EINECS</u>	<u>CLASSIFICATION</u>
Potassium Chloride	7447-40-7	99.3	231-211-8	
Potassium hexacyanoferrate	14459-95-1	0.5		

4. First Aid Measures

Ingestion: In the event to accidental ingestion, rinse mouth with water. If patient is conscious give water to drink. If patient feels unwell seek medical attention.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water. If irritation persists seek medical attention.

Inhalation: Move from exposure to fresh air. Consult a physician if necessary.

Eyes: May cause mild irritation. Irrigate thoroughly with water. Consult physician if irritation persists.

5. Fire Fighting Measures

Fire Fighting Extinguishing Media: Water, Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: Avoid over-inhalation of vapours

Fire and Explosion Hazards: Decomposition at high temperatures

PRODUCT NAME: Potassium Chloride (KCl)

Page 2 of 3

Safety Data Sheet No: 5024EC

6. Accidental Release Measures

Accidental Release Measures: Limit product dispersion. Avoid flames and other ignition sources. Spillages should be swept or vacuumed and then area washed thoroughly with water.

7. Handling and Storage

Precautions: Good personal hygiene practices can reduce potential exposure. Avoid high dust levels and maintain adequate ventilation. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place away from direct heat sources and protected from extreme temperatures.

8. Exposure Controls/Personal Protection

Skin Protection: Wear impervious gloves and clothing, avoid contact with skin

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator as required to control exposure to respirable particulate.

Personal Protective Equipment: Wear protective glasses with side pieces in dusty areas.

9. Physical and Chemical Properties

Appearance and Odor: White powder/granules.

Odour: None

Boiling Point: Sublimes at 1500°C

Bulk Density: 1.99g/cm³

Melting Point: 776°C

Flash Point: Not flammable

Ignition Temperature: N/A

Solubility in Water: Complete

10. Stability and Reactivity

Stability: Stable during stated shelf life

Incompatibility: Avoid excessive temperatures, flame or other sources of ignition

PRODUCT NAME: Potassium Chloride (KCl)

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Safety Data Sheet No: 5024EC

11.Toxicological Information

Ingestion Effects (Rat):	LD50 2430 mg/kg
Ingestion Effects (inf):	LDLo 938 mg/kg.
Skin Irritation Effects (Rat):	LD50 660 mg/kg
Ingestion Effects (Man):	LDLo 20 mg/kg
Intravenous (Mouse):	LD50 117 mg/kg

12.Ecological Information

No data

13.Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations. Care must be taken to prevent environmental contamination from the disposal of material, residues, and containers.

14.Transport information

NON HAZARDOUS for transportation

15.Regulatory Information

NON HAZARDOUS CLASSIFICATION

16.Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Lime

Page 1 of 4

Safety Data Sheet No: 5036EC

1. Identification of the Substances and Details of the Company

Product Description: Alkali

Date Prepared: February 7, 2011

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: CALCIUM HYDROXIDE

Use of substance/preparation: An alkali for use in pH control of potable water, effluent treatment, flue gas treatment and construction

3. Hazards Identification

Main Hazards: Irritating to skin. Risk of serious damage to eyes.

4. First Aid Measures (Symptoms)

Eye Contact: Causes painful irritation and may cause serious damage to eyes.

Ingestion: Unlikely to cause reactions. Larger doses may irritate gastrointestinal tract.

Skin Contact: Irritant, may cause burns in the presence of moisture.

Inhalation: Irritating to the respiratory tract in high concentrations.

4. First Aid Measures (Action)

Eye Contact: SPEED IS ESSENTIAL. Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Do not induce vomiting. Wash out mouth with water. Transfer to hospital as soon as possible.

Skin Contact: Irritant, may cause burns in the presence of moisture.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. Seek medical attention if necessary.

PRODUCT NAME: Lime

Page 2 of 4

Safety Data Sheet No: 5036EC

5. Fire Fighting Measures

Extinguishing Media: Non-combustible and inhibits the spread of flames. Use extinguishing media appropriate to the surrounding conditions.

Protection of Fire Fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

6. Accidental Release Measures

Personal Precautions: Refer to section 8 of SDS for personal protection details.

Environmental Precautions: If product has entered a water course or sewer or has contaminated soil or vegetation notify authorities.

Clean-up Procedures: Transfer to a closable, labeled salvage container for disposal by an appropriate method. Avoid creating dust.

7. Handling and Storage

Handling requirements: Avoid contact with eyes, skin or clothing. Avoid inhalation of dust.

Storage Information: Store in a cool dry environment free from draughts. Bulk storage should be in purpose built silos. Product in bags should be stored in draught free brick or concrete buildings. Avoid incompatible materials and conditions – see section 10 of SDS.

8. Exposure Controls/Personal Protection

Skin Protection:	Wear protective clothing.
Respiratory Protection:	Wear a dust mask if required.
Hand Protection:	Protective gloves
Eye Protection:	Safety goggles. Ensure eye bath is to hand.
WEL (8hr TWA):	5mg/m ³

9. Physical and Chemical Properties

Appearance:	Fine Powder
Odour:	Faint “earthy” odour
Melting Point/Range °C:	580
Colour:	White
Solubility in Water:	1.8 g/l @ 10° C

PRODUCT NAME: Lime

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Safety Data Sheet No: 5036EC

pH: 12.4 (2 g/l)

10. Stability and Reactivity

Conditions to Avoid: Temperatures over 580°C.

Stability: Stable under normal conditions.

Materials to avoid: Strong acids. Aluminium. Lead Brass. Tin and their alloys. DO NOT MIX WITH ANY OTHER CHEMICALS.

Hazardous Decomposition Products: Decomposes at approximately 580°C to form calcium oxide (quicklime).

11. Toxicological Information

Routes of exposure: Prolonged and repeated skin contact may cause dermatitis.

12. Ecological Information

Ecotoxicity: HYDRATED LIME.

Fish Toxicity: 96H LC50 > 100 mg/l

Mobility: Sparingly soluble in water to form alkaline solution. Low mobility in most ground conditions.

Persistence and degradability: Not biodegradable. Reacts with the atmosphere and dissolved carbon dioxide to form calcium carbonate.

Bioaccumulative potential: No bioaccumulation potential.

Other adverse effects: High concentrations (>100 mg/l) may have a sterilizing effect in sewage works. Product is extensively used in treatment of acid wastes and sewage sludges.

13. Disposal Considerations

Disposal Operations: Dispose of through approved waste disposal operatives.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14. Transport information

ADR/RID

PRODUCT NAME: Lime

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Safety Data Sheet No: 5036EC

IMDG/IMO:

IATA/ICAO:

15.Regulatory Information

Hazard Symbols: Irritant



Risk phrases: R38: Irritating to skin
R41: Risk of serious damage to eyes.

Safety Phrases: S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37: Wear suitable gloves.

S39: Wear eye//face protection.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16.Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Sodium Bicarbonate

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Safety Data Sheet No: 5010EC

1. Identification of the Substances and Details of the Company

Company Name and Address:

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Date Prepared:

Date Reviewed: July 2013

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Chemical Name Sodium Bicarbonate
CAS Number 144-55-8
EINECS Number 205-633-8

3. Composition/Information on Ingredients

No significant hazard

Skin Contact There may be mild irritation at the site of contact.

Eye Contact There may be irritation and redness.

Inhalation No symptoms.

Ingestion Harmful if swallowed in large quantities.

4. First Aid Measures

Skin Contact Rinse thoroughly with soap & water and seek medical attention if symptoms persist.

Eye Contact Bathe the eye with running water for 15 minutes.

Inhalation Not applicable.

Ingestion Wash out mouth with water. Do not induce vomiting. Give 200-300 ml of water to drink. Obtain medical attention.

5. Fire Fighting Measures

Extinguishing media Use extinguishing media appropriate to the surrounding conditions.
In combustion emits toxic fumes.
Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

PRODUCT NAME: Sodium Bicarbonate

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Safety Data Sheet No: 5010EC

6. Accidental Release Measures

Personal precautions	Refer to section 8 for personal protection details.
Environmental risk	Avoid making dust clouds.
Clean up procedures	Transfer to a closable, labelled salvage container for disposal by an appropriate method. Wash the spillage site with large amounts of water.

7. Handling and Storage

Handling	No special handling precautions are necessary.
Storage	Do not store with acids. Store in cool, well ventilated area.

8. Exposure Controls/Personal Protection

Hand protection	Protective gloves.
Skin protection	Normal work wear.
Eye protection	Wear safety glasses.
Respiratory protection	Use dust masks. Ensure adequate ventilation and dust control measures to maintain dust levels below OES* limit.

*OES level (Occupational Exposure Standard):

Dry bentonite is classed as a nuisance dust with an 8 hour TWA for total dust inhalation of 10mg/m³ and 5mg/m³ for respirable dust. Quartz present in small quantities in this product has a Maximum Exposure Limit (MEL) of 0.4mg/m³ respirable dust for an 8 hour TWA period. (Respirable dust is that portion with a particle size <7.1µ.)

9. Physical and Chemical Properties

State	Powder
Colour	White
Odour	Odourless
Oxidising	Non-oxidising (by EC criteria)
Solubility in water	9.5% @ 25° C

10. Stability and Reactivity

Stability	Avoid generation of dust.
Conditions to avoid	Moist air
Materials to avoid	Acids. DO NOT MIX WITH ANY OTHER CHEMICALS
Hazardous	In combustion emits toxic fumes of carbon dioxide / carbon monoxide
Decomposition products.	

PRODUCT NAME: Sodium Bicarbonate

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Safety Data Sheet No: 5010EC

11.Toxicological Information

Acute toxicity	SODIUM BICARBONATE LD50 4220 mg/kg
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12.Ecological Information

Ecotoxicity	SODIUM BICARBONATE FISH 96H LC50 8600 mg/l
Mobility	Soluble in water

13.Disposal Considerations

Dispose of through approved waste disposal operatives.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14.Transport information

ADR/RID IMDG/IMO IATA/ICAO

15.Regulatory Information

Hazard Symbols: No significant hazard.

Note: The regulatory information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Clear Solutions International Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and it is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

16.Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Soda Ash (Sodium Carbonate- Na_2CO_3)

Page 1 of 4

Safety Data Sheet No: 5026EC

1. Identification of the Substances and Details of the Company

Product Description: pH Increaser

Date Prepared: 01/08/2009

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

PRODUCT IDENTIFICATION:

Chemical Name: Sodium Carbonate – Na_2CO_3

Composition: Contains 98% (MIN) Sodium Carbonate, 0.7% (MAX) Sodium Bi-Carbonate and 0.6% (MAX) Sodium Chloride
Pouring Density: 480-600 kg/m³

Chemical Name	CAS No	%	EC Number	Symbol	R-Phrases
Sodium Carbonate – Na_2CO_3	497-19-8	100	209-838-8	Xi	R36

3. Composition/Information on Ingredients

Statement of Hazards: Irritating to eyes

4. First Aid Measures

When contacting a physician, take this safety datasheet with you.

Skin: Wash skin with plenty of soap and water. Remove contaminated clothing. If skin blistering occurs or continuous irritation consult a physician.

Inhalation: Remove from exposure into fresh air. If breathing difficulties occur give oxygen. In case of failing or failed breathing, provide artificial respiration but not mouth to mouth ventilation. Obtain medical emergency support urgently.

Eyes: Flood eyes with plenty of water for at least 10 minutes holding eye open. Obtain medical attention immediately.

Ingestion: Wash out mouth with clean water. Drink 240-300ml water to dilute stomach contents, seek medical advice. DO NOT induce vomiting.

PRODUCT NAME: Soda Ash (Sodium Carbonate- Na_2CO_3)

Page 2 of 4

Safety Data Sheet No: 5026EC

5. Fire Fighting Measures

Fire Fighting Extinguishing Media:

Non combustible – select extinguishing agent appropriate to surrounding materials.

Fire Fighting Equipment:

Fire fighters should wear self-contained positive pressure breathing apparatus (SCBA) and full turnout gear.

Fire and Explosion Hazards:

Hazardous Combustion Product – CARBON DIOXIDE

This product may give rise to hazardous fumes in a fire

Hazardous Decomposition Products:

Reaction with water or moist air may give rise to oxides of carbon

6. Accidental Release Measures

Personal Protection: Wear appropriate protective clothing. Wear respiratory protection

Methods for Cleaning Up: Small spillages may be flushed with large quantities of water. Large spillages should be collected for disposal, sweep up and place in suitable containers for recovery or disposal.

Advise authorities if spillage enters water course or sewer or has contaminated soil or vegetation

7. Handling and Storage

Normal precautions for the handling of chemicals should be observed.

Precautions: Use in well ventilated area. Keep electrical apparatus in particular free of dust. Avoid inhalation. Avoid contact with eyes, skin and clothing. Emergency shower and eye wash facilities should be readily available.

Storage Information: Store in a cool, dry, well ventilated, under cover area. Keep containers tightly closed to prevent ingress of moisture. Avoid storing sacks in large stacks to prevent product caking. Use original container

8. Exposure Controls/Personal Protection

Engineering Measures: Use of basic principles of Industrial Hygiene will enable this product to be used safely.

Hygiene Measures: Wash hands after handling compounds and before eating, smoking and using lavatory and at the end of the day.

Workplace exposure limits: Not available

PRODUCT NAME: Soda Ash (Sodium Carbonate- Na_2CO_3)

Page 3 of 4

Safety Data Sheet No: 5026EC

Personal Protective Equipment

Skin Protection: Wear dust proof overalls with hood and rubber boots. PVC or Rubber gloves.

Respiratory Protection: Dust respirator.

Eyes: Chemical Goggles

9. Physical and Chemical Properties

Appearance:	White Solid or Powder
Odour:	None
Boiling Point:	1600°C
Melting Point:	851°C
Bulk Density:	Not available
pH:	Alkaline
Flash Point:	Not available
Solubility in Water:	22g/100ml

10. Stability and Reactivity

Stability: Stable under normal conditions

Conditions to Avoid: Exposure to water or moisture

Materials to avoid: Strong acids. Acid Anhydrides. Aluminium. Lithium. Phosphorous Pentoxide. Water

Hazardous Decomposition Products: Reaction with water or moist air may produce oxides of carbon.

11. Toxicological Information

Acute Toxicity: LD50/oral/rat = 4090mg/kg.

Local Effects: Hazardous in case of eye contact – irritant.

12. Ecological Information

Ecotoxicity: This product is rated as practically non-toxic to aquatic species. High concentrations injure aquatic life by effect on pH.

PRODUCT NAME: Soda Ash (Sodium Carbonate- N_2CO_3)

Page 4 of 4

Safety Data Sheet No: 5026EC

13. Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

Waste Classification: Not applicable

14. Transport information

NON HAZARDOUS FOR TRANSPORT

15. Regulatory Information

Hazard Symbol:



Classification: Irritant

Risk Phrases: R36 Irritating to eyes

Safety Phrases: S22 Do not breathe dust.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Product Use: Classification and labeling have been performed according to EU directives 67/548/EEC, 88/379/EEC, including- Consumer applications.

16. Other Information

Safety Data Sheet prepared according to Annex II of the REACH Regulation (EC)1907/2006 of the European Parliament.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

SAFETY DATA SHEET

Product Trade Name: **TUNED SPACER E+**

Revision Date: 04-Jan-2011

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of Substances or Preparation

Product Trade Name: TUNED SPACER E+

Synonyms: None

Chemical Family: Mineral

Application: Cement Spacer

Company Undertaking Identification
Halliburton Energy Services
Halliburton House, Howemoss Place
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

Prepared By
Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARDS IDENTIFICATION

Risk Phrases
None

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT	EINECS	UK OEL	Germany MAK/TRK	Netherlands	EEC Classification
Crystalline silica, quartz	14808-60-7	1 - 5%	238-878-4	0.3 mg/m ³	0,15 mg/m ³	0,075 mg/m ³	Not applicable
Bentonite	1302-78-9	60 - 100%	215-108-5	10 mg/m ³	Not applicable	Not applicable	Not applicable
Crystalline silica, tridymite	15468-32-3	0 - 1%	239-487-1	0.1 mg/m ³	Not applicable	0,075 mg/m ³	Not applicable
Crystalline silica, cristobalite	14464-46-1	0 - 1%	238-455-4	0.1 mg/m ³	0,15 mg/m ³	0,075 mg/m ³	Not applicable

4. FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.
Notes to Physician	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons	None known.
Special Exposure Hazards	Decomposition in fire may produce toxic gases.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures	None known.
Procedure for Cleaning / Absorption	Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions	This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.
Storage Information	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.
Respiratory Protection	Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.
Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	White to light straw
Odor:	Odorless
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	2.65
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/m ³):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m ³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m ³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	5
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated

Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Oxides of sulfur. Carbon monoxide and carbon dioxide. Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A). Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	None known
Aggravated Medical Conditions	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.
Chronic Effects/Carcinogenicity	Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis. Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to <u>IARC Monograph 68, Silica, Some Silicates and Organic Fibres</u> (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2). There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.
Other Information	For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Refer to <u>IARC Monograph 68, Silica, Some Silicates and Organic Fibres</u> (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Not determined
Bio-accumulation	Not determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

EC Supply labeling Requirements This product is not subject to the labeling requirements of EC Directives 67/548/EEC and 88/379/EEC as amended.

Classification Crystalline silica is not classified as a carcinogen in EU Council Directives 67/548/EEC and 88/379/EEC.

Risk Phrases None

Safety Phrases None

EINECS Inventory This product, and all its components, complies with EINECS

Germany, Water Endangering Classes (WGK) WGK 0: Generally not water endangering.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

PRODUCT NAME: CLEAR-STABILISER® HV

Page 1 of 5

Safety Data Sheet No: 5022EC

1. Identification of the Substances and Details of the Company

Product Description: Fluid Loss Control Additive

Date Prepared: January 2004

Suppliers Name and Address:

Date Reviewed: December 2013

Clear Solutions International Ltd
Unit B3
Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White/off white powder, odourless

Statement of Hazards: This product is not classified as hazardous under EEC directives 67/548/EEC or 88/3/379/EEC

Precautionary Measures:

Eye Contact – Dry powder may cause foreign body irritation in some individuals. Solutions are non-irritating.

Skin Contact – Prolonged contact with dry powder may cause drying or chapping of the skin. No evidence of other adverse effects known.

Inhalation – No evidence of adverse effects from available information. However, excessive inhalation of dust can mechanically impede respiration.

Ingestion – No evidence of adverse effects from available information.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: High Purity Sodium Carboxymethyl Cellulose (Sodium CMC)

HMIS Rating: Health – 0, Flammability – 0, Reactivity - 0, Protective Equipment – See Section 8

		EXPOSURE LIMITS		
CHEMICAL IDENTITY	CAS NO.	OSHA PEL (TWA)	ACGIH TLV (TWA)	DFG MAKs (TWA)
Sodium CMC	9004-32-4	NE	NE	NE
Particulates not otherwise specified (PNOS)				
Inhalable		15 mg/m ³	10 mg/m ³	4 mg/m ³
Respirable		5 mg/m ³	3 mg/m ³	1.5 mg/m ³

PRODUCT NAME: CLEAR-STABILISER® HV

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Safety Data Sheet No: 5022EC

OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE** = Not Established
ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr. TWA, 40 hr. week
DFG MAK - Federal Republic of Germany Maximum Concentration Values in the Workplace.

4. First Aid Measures

Eye Contact: Flush with water.

Ingestion: Drink large quantities of water.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: Move to fresh air.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable (Warning: combustible dust)

Autoignition Temperature: 460 °C

Lower Explosion Limit: 156 g/m³

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. Wetted product presents a slip hazard.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Hazardous Decomposition Products: Oxides of Carbon and Nitrogen.

Emergency Response Guidebook Information: No ERG # indicated. Handle as a combustible material.

6. Accidental Release Measures

Accidental Release Measures: Spilt material is slippery; sweep up from floor. This powder when dispersed in air represents an explosion hazard.

7. Handling and Storage

Precautions: Handle in a well ventilated area. Wash thoroughly after handling. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

PRODUCT NAME: CLEAR-STABILISER[®] HV

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Safety Data Sheet No: 5022EC

8. Exposure Controls/Personal Protection

Skin Protection: Not normally required

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator as required to control exposure to respirable particulates.

Personal Protective Equipment: Use appropriate respiratory protection for respirable particulate based on consideration of airborne workplace concentration and duration of exposure arising from intended end use.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g apron, face shield, etc) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour: White to off-white free flowing powder

Odour Threshold: Odourless

Freezing Point: Not Applicable

Vapor Pressure (mm Hg): Not Applicable

Vapor Density (Air = 1): Not Applicable

Decomposition Temperature: Not Evaluated

Boiling Point: Not applicable

Melting Point: Not Applicable

Solubility in Water: Complete

Bulk Density: 0.3-0.8 g/cc.

Evaporation Rate: Not Applicable

VOC: Not Evaluated

pH: 6 – 8.5 (1% solution)

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Biodegradable: Thermal decomposition or combustion may produce oxides of carbon and nitrogen.

Incompatibility: Oxidiser

11. Toxicological Information

Acute Oral Toxicity: Low oral toxicity.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Toxicologically Synergistic Products: None known.

PRODUCT NAME: CLEAR-STABILISER® HV

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Safety Data Sheet No: 5022EC

12. Ecological Information

Ecological Information: Product not considered toxic to aquatic organisms.

Degradation Biotic: SCAS Test: Inherently biodegradable

13. Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not classified as hazardous for disposal purposes by RCRA Standards.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14. Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

15. Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

PRODUCT NAME: CLEAR-STABILISER® HV

Page 5 of 5

Safety Data Sheet No: 5022EC

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

Recommended Use: Bore hole stabilizer

16. Other Information

References: 2001 ACGIH Guide to Occupational Exposure
Registry for Toxic Effects of Chemical Substances (RTECS) 1995
Patty's Industrial Hygiene and Toxicology

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Pure-Bore[®]
Safety Data Sheet No: 5001EC

Page 1 of 5

1. Identification of the Substances and Details of the Company

Product Description: Biodegradable Drilling Fluid

Date Prepared: January 05/2004

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White powder with a slight odor.

Statement of Hazards: This product contains no hazardous ingredients. It is not classified as a carcinogen according to IARC, OSHA, or NTP.

Precautionary Measures:

Eye Contact – Dry powder may cause foreign body irritation in some individuals. Solutions are non-irritating.

Skin Contact – Prolonged contact with dry powder may cause drying or chapping of the skin. No evidence of other adverse effects known.

Inhalation – No evidence of adverse effects from available information. However, excessive inhalation of dust may cause irritation and can mechanically impede respiration.

Ingestion – No evidence of adverse effects from available information. LD₅₀ is greater than 5000 mg/kg.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Natural Polysaccharides

HMIS Rating: Health – 0, Flammability - 1, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

CHEMICAL IDENTITY		OSHA PEL (TWA)	ACGIH TLV (TWA)	DFG MAKs (TWA)
		NE	NE	NE
Particulates Not Otherwise Specified (PNOS)	Inhalable	15 mg/m ³	10 mg/m ³	4 mg/m ³
	Respirable	5 mg/m ³	3 mg/m ³	1.5 mg/m ³

PRODUCT NAME: Pure-Bore[®]
Safety Data Sheet No: 5001EC

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OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE** = Not Established
ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr.
TWA, 40 hr. week
DFG MAK - Federal Republic of Germany Maximum Concentration Values in the Workplace.

4. First Aid Measures

Eye Contact: Remove contact lenses, promptly wash eyes with plenty of water. Obtain medical advice if irritation persists.

Ingestion: Rinse mouth thoroughly, drink plenty of water. DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Seek medical attention if large amounts ingested.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area immediately with lots of water. Get medical attention if any discomfort continues.

Inhalation: Move to fresh air. Get medical attention if any discomfort continues.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable (Warning: combustible dust)

Autoignition Temperature: Not Evaluated

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. However, wetted product presents a slip hazard.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Hazardous Decomposition Products: None. (Oxides of carbon and nitrogen formed when burned).

6. Accidental Release Measures

Accidental Release Measures: Product becomes slippery and difficult to handle when wet; spills are best handled while still dry. Sweep up and collect dry product. Absorb wet product with vermiculite or other inert material. Then water wash area to waste treatment to eliminate slip hazard.

Personal Precautions: Wear protective clothing as described in Section 8 of this safety data sheet.

7. Handling and Storage

Precautions: Avoid contact with eyes, skin or clothing. Avoid breathing vapors, mist, fume or dust. Wash thoroughly after handling. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

PRODUCT NAME: Pure-Bore[®]

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Safety Data Sheet No: 5001EC

8. Exposure Controls/Personal Protection



Skin Protection: Avoid unnecessary skin contact. Wear appropriate clothing to prevent repeated or prolonged skin contact.

Respiratory Protection: Respiratory protection must be used if air contamination exceeds acceptable level. Use chemical cartridge protection with appropriate cartridge. Gas cartridge suitable for organic substances.

Eye protection: Use approved safety goggles or face shield.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour:	White to off-white free flowing powder
Odour Threshold:	Not Applicable
Freezing Point:	Not Applicable
Vapor Pressure (mm Hg):	Not Applicable
Vapor Density (Air = 1):	Not Applicable
Decomposition Temperature:	Not Evaluated
Molecular Weight:	1,000,000 (approx.)
Boiling Point:	Not applicable
Melting Point:	Not applicable
Solubility in Water:	Complete
Bulk Density:	0.3 - 0.80 g/cm ³ (approx.)
Evaporation Rate:	Not Applicable
VOC:	Not Evaluated
pH:	6.0 – 8.5 (0.5% solution)

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

PRODUCT NAME: Pure-Bore[®]
Safety Data Sheet No: 5001EC

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Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: None (biodegradable)

Incompatibility: Strong oxidants such as liquid chlorine, enriched gaseous or liquid oxygen, and sodium or calcium hypochlorite.

11.Toxicological Information

Acute Oral Toxicity: Low oral toxicity. Acute Oral LD50 (rat) > 10,000 - 27000mg/kg. No adverse effects have been noted in chronic feeding studies using laboratory animals and humans

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Skin Irritation: Dry powder may cause foreign body irritation in some individuals.

Toxicologically Synergistic Products: None known.

12.Ecological Information

Ecotoxicity: Product not considered as dangerous for the environment.

13.Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not classified as hazardous for disposal purposes by RCRA Standards.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14.Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

PRODUCT NAME: Pure-Bore[®]

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Safety Data Sheet No: 5001EC

15.Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

16.Other Information

Recommended Use: Biodegradable Drilling Fluid

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

APPROVAL CONFIRMATION

Product name/designation	Pure-Bore®
Approval Category(ies)	A.9 Other Chemicals
Approval Holder (Name & Address)	Clear Solutions International Ltd Unit B3 Wem Industrial Estate Soulton Road Wem Shropshire SY4 5SD
Instructions for Use	TECHNICAL DATA SHEET AND INSTRUCTIONS FOR USE - WATER WELL DRILLING FLUIDS Pure-Bore® Version 01 June 2012
DWI Ref Number	DWI 56.4.1118

The Secretary of State for Environment, Food and Rural Affairs in respect of relevant water suppliers¹ whose area of supply is wholly or mainly in England, and the Welsh Ministers in respect of relevant water suppliers whose area of supply is wholly or mainly in Wales, in exercise of their powers under Regulation 31(4)(a) of the Water Supply (Water Quality) Regulations 2000 and Regulation 31(4)(a) of the Water Supply (Water Quality) Regulations 2010 (Wales) respectively hereby approve the introduction or application of the product detailed above, in accordance with the following Conditions:

CONDITIONS OF APPROVAL

The above named product is approved for application in England and Wales² by a relevant water supplier for public water supply purposes subject to the following conditions:

1. Relevant water suppliers shall be provided with a copy of the Instructions for Use (IFU) detailed above and use of the product must be in accordance with the IFU.

2. The Drinking Water Inspectorate (DWI) must be notified, in advance and in writing, by the approval holder detailed above, in respect of any change in –

- The Instructions for Use
- The formulation of the approved product, including change in source or identity of raw materials
- The manufacturing process, including location of manufacture
- The designation of the approved product
- The name, address or ownership of the organisation holding the approval

Failure to notify such changes will result in approval being withdrawn.

3. The approval holder shall ensure that the product is tested for conformity with its formulation, and the source or identity of its raw materials, at such intervals and by such persons, as may be determined by the DWI and the results of such testing shall be sent to DWI.

4. The use of the Drinking Water Inspectorate, DEFRA or Welsh Government logos, in respect of any approved product (including on the product or in editorial or advertising/trade copy) is not permitted.

5. The following product specific condition(s) apply – none

Signed by authority of the Secretary of State
and the Welsh Ministers

Date of issue: 11/11/2013
Date of Expiry: 11/11/2018



Prof. Jeni Colbourne MBE

¹ Relevant water suppliers shall include water undertakers, water supply licensees and inset appointees.

² Separate approval arrangements apply in Scotland and Northern Ireland

Pure-Bore®

Clear Solutions International Ltd , Unit B3 Wem Industrial Estate, Saulton Road , Wem , Shropshire, SY4 5SD, United Kingdom

Registration No: 24868 Version No: 1 Expiry Date: 21/03/2015

Application Process System			Dose Rate	Worst Aquatic Toxicity Test		Number of Aquatic Toxicity Tests		OCNS Group	100% PLONOR	
CHARM is not applicable to this process system			3000 ppm	N/A		N/A		E	Yes	
Application	Surfactant Type	Drilling Mud Density kg/m3	Sediment Reworker	Biodegradation Value/ %	Time/Days	Protocol	Minimum Log Po/w	Koc	Koc Protocol	Organic C Content
CHARM N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TO WHOM IT MAY CONCERN

29th November 2013

Pure-Bore® - the drilling fluid for a cleaner tomorrow.

We are delighted to announce that Pure-Bore® has been granted approval under regulation 31(4)a of the Water Supply (Water Quality) Regulations 2000 and the Water Supply (Water Quality) Regulations 2010 and therefore approved for use in public water supplies and included in the "List of Approved Products for use in Public Water Supply in the United Kingdom".

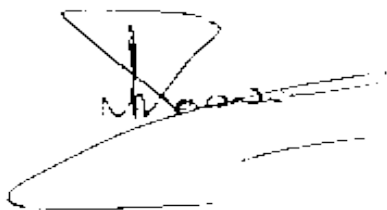
Pure-Bore® was developed by, and is manufactured by the Clear Solutions Group of Companies.

Pure-Bore® produces ultra efficient drilling fluid properties, providing exceptional borehole stability, optimised hole cleaning efficiency and maximised drilling rates. Pure-Bore® also significantly aids the development of producing wells, effectively protecting the reservoir during the drilling phase. After drilling it is possible to break the Pure-Bore® drilling fluid with calcium hypochlorite leaving the reservoir unaffected by the drilling process and free to produce at maximum levels.

Pure-Bore® is PLONOR, and the CEFAS registration for Pure-Bore® was granted in March 2012, with Pure-Bore® achieving the best possible environmental rating under this registration scheme (Gold rating).

The latest application to the Drinking Water Inspectorate (DWI) for Pure-Bore® demonstrates Clear Solutions ongoing commitment to supporting our customers and further strengthens our unrivalled environmental credentials.

For further information please feel free to contact myself at Clear Solutions.



Mike Massey

Technical Manager

PRODUCT NAME: Citric Acid Monohydrate

Page 1 of 3

Safety Data Sheet No: 5012EC

1. Identification of the Substances and Details of the Company

Company Name and Address:	Date Prepared:
Clear Solutions International Ltd	Date Reviewed: July 2013
Unit B3, Wem Industrial Estate	
Soulton Road	
Wem	
Shropshire SY4 5SD	Tel: +44 (0) 1939 235754
	Fax: +44 (0) 1939 232399
ENGLAND	

2. Hazards Identification

No significant hazard	
Skin Contact	There may be mild irritation at the site of contact.
Eye Contact	There may be irritation and redness.
Inhalation	May cause irritation to the respiratory system.
Ingestion	Harmful if swallowed in large quantities.

3. Composition/Information on Ingredients

Chemical Name	Citric Acid Monohydrate
CAS Number	5949-29-1
EINECS Number	201-069-1
Synonyms	2-Hydroxy-Propane Tricarboxylic acid

4. First Aid Measures

Skin Contact	Rinse thoroughly with soap & water and seek medical attention if symptoms persist.
Eye Contact	Bathe the eye with running water for 15 minutes. Seek medical attention if irritation persists.
Inhalation	Remove from exposure.
Ingestion	After large amounts give antacid or milk. Obtain medical attention.

5. Fire Fighting Measures

Extinguishing media	Use extinguishing media appropriate to the surrounding conditions. In combustion emits toxic fumes. Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.
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PRODUCT NAME: Citric Acid Monohydrate

Page 2 of 3

Safety Data Sheet No: 5012EC

6. Accidental Release Measures

Personal precautions	When handling observe usual precautionary measures for chemicals.
Clean up procedures	Transfer to a closable, labelled salvage container for disposal by an appropriate method. Wash the spillage site with large amounts of water.

7. Handling and Storage

Handling	No special handling precautions are necessary.
----------	--

8. Exposure Controls/Personal Protection

Hand protection	Protective gloves.
Skin protection	Wear protective clothing.
Eye protection	Wear safety goggles.

9. Physical and Chemical Properties

State	Crystalline powder
Colour	White
Odour	Odourless
Oxidising	Non-oxidising (by EC criteria)
Solubility in water	162g per 100ml water @ 25 deg C
Melting point/range °C	153
Vapour pressure	6.8

10. Stability and Reactivity

Stability	Stable under normal conditions.
Conditions to avoid	Heat.
Materials to avoid	No specific materials to avoid but DO NOT MIX WITH OTHER CHEMICALS.
Hazardous	In combustion emits toxic fumes.
Decomposition products.	

11. Toxicological Information

Acute toxicity	CITRIC ACID MONOHYDRATE IPR RAT LD50 883 mg/kg ORL MUS LD50 5040 mg/kg ORL RAT LD50 11.7 g/kg SCU RAT LD50 5500 mg/kg
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PRODUCT NAME: Citric Acid Monohydrate

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Safety Data Sheet No: 5012EC

12. Ecological Information

Mobility	Soluble in water.
Persistence and degradability	Rapidly biodegradable.
Bioaccumulative potential	No bioaccumulation potential.
Other adverse effects	Negligible ecotoxicity.

13. Disposal Considerations

Dispose of through approved waste disposal operatives.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14. Transport information

ADR/RID IMDG/IMO IATA/ICAO

15. Regulatory Information

Hazard Symbols: No significant hazard.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions, which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

Note: The regulatory information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Clear Solutions International Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and it is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

16. Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: CLEAR-GEL™

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Safety Data Sheet No: 5019EC

1. Identification of the Substances and Details of the Company

Suppliers Name and Address:

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Date Prepared: January 2004

Date Reviewed: July 2013

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White powder, slight odor.

Statement of Hazards: This product contains no hazardous ingredients.

Precautionary Measures:

Eye Contact – Dry powder may cause foreign body irritation in some individuals. Solutions are non-irritating.

Skin Contact – Prolonged contact with dry powder may cause drying or chapping of the skin. No evidence of other adverse effects known.

Inhalation – No evidence of adverse effects from available information. However, excessive inhalation of dust can mechanically impede respiration.

Ingestion – No evidence of adverse effects from available information. LD₅₀ is greater than 5000 mg/kg.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Polysaccharide Based Polymer

HMIS Rating: Health – 0, Flammability - 1, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

<u>CHEMICAL IDENTITY</u>		<u>CAS No</u>	<u>OSHA PEL</u> (TWA)	<u>ACGIH TLV</u> (TWA)	<u>DFG MAKs</u> (TWA)
		11138-66-2	NE	NE	NE
Particulates Not Otherwise Specified (PNOS)					
	Inhalable		15 mg/m ³	10 mg/m ³	4 mg/m ³
	Respirable		5 mg/m ³	3 mg/m ³	1.5 mg/m ³

PRODUCT NAME: CLEAR-GEL™

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Safety Data Sheet No: 5019EC

OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE** = Not Established
ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr.
TWA, 40 hr. week
DFG MAK - Federal Republic of Germany Maximum Concentration Values in the Workplace.

4. First Aid Measures

Eye Contact: Flush with water for at least 10 minutes. If irritation occurs, consult a physician.

Ingestion: If illness or adverse effects occur, seek medical attention.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: Move to fresh air.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable (Warning: combustible dust)

Autoignition Temperature: Not Evaluated

Explosive Limits: Not Evaluated

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. However, wetted product presents a slip hazard.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Hazardous Decomposition Products: Not Evaluated

Emergency Response Guidebook Information: No ERG # indicated. Handle as a combustible material.

6. Accidental Release Measures

Accidental Release Measures: Product becomes slippery and difficult to handle when wet; spills are best handled while still dry. Sweep up and collect dry product. Absorb wet product with vermiculite or other inert material. Then water wash area to waste treatment to eliminate slip hazard.

PRODUCT NAME: CLEAR-GELTM

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Safety Data Sheet No: 5019EC

7. Handling and Storage

Precautions: Avoid contact with eyes, skin or clothing. Avoid breathing vapors, mist, fume or dust. Wash thoroughly after handling. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

8. Exposure Controls/Personal Protection

Skin Protection: Avoid unnecessary skin contact.

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator as required to control exposure to respirable particulate.

Personal Protective Equipment: Use appropriate respiratory protection for respirable particulate based on consideration of airborne workplace concentration and duration of exposure arising from intended end use.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour: White to off-white free flowing powder

Odour Threshold: Not Applicable

Freezing Point: Not Applicable

Vapor Pressure (mm Hg): Not Applicable

Vapor Density (Air = 1): Not Applicable

Decomposition Temperature: Not Evaluated

Boiling Point: Not applicable

Melting Point: Not Applicable

Solubility in Water: Complete

Bulk Density: 0.8 g/cm³ (approx.)

Evaporation Rate: Not Applicable

VOC: Not Evaluated

pH: Neutral

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Biodegradable, we are not aware that it poses any toxic threat to the environment.

PRODUCT NAME: CLEAR-GEL™

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Safety Data Sheet No: 5019EC

11.Toxicological Information

Acute Oral Toxicity LD50 (rat): > 5,000 mg/kg. No adverse effects have been noted in chronic feeding studies using laboratory animals and humans

Skin Contact Effects LD50: No data available

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Skin Irritation: Dry powder may cause foreign body irritation in some individuals.

Toxicologically Synergistic Products: None known.

12.Ecological Information

Ecological Information: Product not considered toxic to aquatic organisms.

Fish Toxicity: No data available

13.Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not classified as hazardous for disposal purposes by RCRA Standards.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14.Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

15.Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

PRODUCT NAME: CLEAR-GEL™

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Safety Data Sheet No: 5019EC

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

16. Other Information

Recommended Use: Viscosifier

References: 2001 ACGIH Guide to Occupational Exposure
Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: DEFOAMER

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Safety Data Sheet No: 5033EC

1. Identification of the Substances and Details of the Company

Product Description: Liquid Antifoam

Date Prepared: July 2010

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

PRODUCT IDENTIFICATION:

10% Silicone based liquid antifoam

3. Composition/Information on Ingredients

Description: White liquid, almost odourless.

Precautionary Measures:

Eye Contact – May cause temporary redness and inflammation to the eyes.

Skin Contact – Prolonged exposure to the skin should be avoided to prevent possible redness of the skin.

4. First Aid Measures

Eye Contact: Rinse immediately with clean water for at least 15 minutes. Seek medical attention.

Ingestion: Harmless.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water. Seek medical attention if skin irritation is experienced.

Inhalation: Remove the person to fresh air and keep at rest. Seek medical advice if respiratory irritation is experienced or if other symptoms occur.

5. Fire Fighting Measures

Extinguishing Media: For large fires use dry powder, foam or water fog. For small fires use carbon dioxide or sand.

Unsuitable Extinguishing Media: Water jets.

Special Exposure Hazards: Unknown.

PPE for Fire Fighting: Do not breathe fumes. Wear self-contained breathing apparatus.

Fire Fighting Guidance: If possible and without risk, remove unopened containers from exposure to fire.

PRODUCT NAME: DEFOAMER

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Safety Data Sheet No: 5033EC

Otherwise, spray unopened containers with water to keep cool. Do not let fire-fighting water contaminate drains or watercourses.

6. Accidental Release Measures

Personal Precautions: Avoid contact with spilled material or contaminated surfaces. Wear protective clothing as described in Section 8. Whilst dealing with the spillage do not eat, drink or smoke.

Environmental Precautions: Keep people and animals away. Prevent entry into drains, sewers and watercourses (inform the Environmental Agency if this occurs).

Spillages: Contain/absorb spillage in sand/earth or in a suitable inert material. Collect using a non-sparking shovel and place in a plastic/steel drum in a well-ventilated place for subsequent safe disposal (see Section 13).

7. Handling and Storage

Handling: No specific precautions when handling unopened containers; follow any manual handling guidance. Refer to Section 8 if exposure to product is possible. Wash thoroughly with soap and water after handling and before eating, drinking or smoking.

Storage: Store in original packs/containers in a dry, secure ventilated area. PROTECT FROM EXTREME TEMPERATURE AND FROST. As emulsion stability decreases with time we recommend a shelf life of 6 months from drumming.

8. Exposure Controls/Personal Protection

Engineering Controls: Wherever possible exposure should be eliminated or minimized using appropriate engineering controls such as physical containment and good ventilation.

Respiratory Protection: Unlikely to be required in normal use but ensure good ventilation.

Occupational Exposure Standard: None known.

Body Protection: Wear chemical resistant non-absorbent overalls.

Hand Protection: Wear chemical resistant nitrile gloves and change regularly.

Eye Protection: Wear goggles with side protection or visor.

Note (1) Some of the protective equipment may be inappropriate when very small quantities are involved – obtain expert advice before disregarding.

Note (2) Refer also to any COSHH assessment made for this material.

PRODUCT NAME: DEFOAMER

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Safety Data Sheet No: 5033EC

9. Physical and Chemical Properties

Physical State: Liquid

Colour: White

Odour: Almost odourless

Flash Point: Not Applicable

Boiling Range/Point: 100° C

Melting Point: 0° C

pH: 6 - 8

S.G @ 15° C: Ca 1.00

10. Stability and Reactivity

Conditions to Avoid: PROTECT FROM EXTREME TEMPERATURE AND FROST.

Stability: Stable in normal conditions.

Materials to Avoid: Avoid strong acids; avoid materials which react with water.

11. Toxicological Information

Acute Toxicity: INHALATION: None. SKIN AND EYE CONTACT: In experimental tests, in spite of the high pH, Europrene latex has not resulted to be irritant or corrosive. INGESTION: None.

Carcinogenicity: No.

Mutagenicity: No.

Reprotoxicity: No.

12. Ecological Information

Degradability: No data available.

Bio-accumulation: No data available.

Aquatic Toxicity: No data available.

13. Disposal Considerations

Description and Handling of Residues: Latex surplus and residues are to be handled with the precautionary measures specified in headings 7 and 8.

Appropriate Methods of Disposal: Coagulate the particles in suspension either with aluminium sulphate or calcium chloride. Decant and neutralize contaminated water prior to send to water treatment. Solid residues may be disposed at approved land-fill pits or incinerated, in accordance with the requirements of the local waste disposal authorities and national regulations.

PRODUCT NAME: DEFOAMER

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Safety Data Sheet No: 5033EC

14. Transport information

ADR/RID: Not classified as dangerous for transport.

CDG-CPL: Not classified as dangerous for transport.

IMDG/IMO: Not classified as dangerous for transport.

IATA/ICAO: Not classified as dangerous for transport.

15. Regulatory Information

Hazard Symbols: None

Designated Name: Clear Solutions International Ltd DEFOAMER

Risk Phrases: None.

Safety Phrases: None.

16. Other Information

Date this safety sheet generated: 6th July 2010

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

1. Identification of the Substances and Details of the Company

Company Name and Address:	Date Prepared:
Clear Solutions International Ltd	Date Reviewed: July 2013
Unit B3, Wem Industrial Estate	
Soulton Road	
Wem	
Shropshire SY4 5SD	Tel: +44 (0) 1939 235754
	Fax: +44 (0) 1939 232399
ENGLAND	

2. Hazards Identification

Description: Clear red liquid with mild odour.

Statement of Hazards: This product contains no hazardous ingredients.

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Avoid prolonged or repeated inhalation of mists or sprays and skin contact. Very slippery when wet.

Primary Route(s) of Entry: Skin contact.

Signs and Symptoms of Exposure: Eye contact may produce irritation and/or redness. Inhaled mist may cause some respiratory irritation. Prolonged and frequent skin contact may lead to rashes or dermatitis.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH

Medical Conditions Aggravated by Exposure: None known.

Target Organ(s): Not Applicable

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Proprietary mixture of anionic and nonionic surfactants

HMIS Rating: Health – 0, Flammability - 0, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

<u>CHEMICAL IDENTITY</u>	<u>CAS No.</u>	<u>OSHA PEL</u> (TWA)	<u>ACGIH TLV</u> (TWA)	<u>UK HSE EH 40</u> (TWA)
Liquid solution of nonionic surfactants	Mixture	NE	NE	NE

OSHA PEL- OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average

NE = Not Established

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr. TW, 40 hr. week

UK HSE EH 40 - UK Health and Safety Executive / Environmental Health Occupational Exposure Limits, 8 h TWA

4. First Aid Measures

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: If mists or sprays are inhaled, move to fresh air and clear any blocked airways. Keep casualty at rest and consult physician.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Consult physician if irritation occurs.

Ingestion: If illness or adverse effects occur, seek medical attention.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable. Non-flammable liquid.

Autoignition Temperature: Not Applicable

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Water can be used to cool containers adjacent to fire.

Fire Fighting Equipment: No special procedures.

Fire and Explosion Hazards: Pressure may develop in closed containers if temperatures over 190°F are achieved.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, ammonia and smoke.

Emergency Response Guidebook Information: No ERG # indicated.

6. Accidental Release Measures

Personal Protection: Use personal protective equipment. Breathing apparatus required only in a fire situation.

Methods for Cleaning Up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up and shovel into suitable containers for disposal.

Environmental Precautions: Do not flush into surface water or sanitary sewer system.

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

7. Handling and Storage

Precautions: Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

8. Exposure Controls/Personal Protection

Skin Protection:

Plastic or rubber gloves are recommended

Respiratory Protection:

Under normal conditions, respiratory protection is not required. However, if strong fumes are present, use a half or full face mask with an organic vapor filter (European standard EN 143).

Engineering Controls:

Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information:

Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour:	Clear red liquid with mild odour.
Odour Threshold:	Not Determined
Solubility in Water:	Complete
Vapor Pressure (mm Hg):	Not Determined
Vapor Density (Air = 1):	Not Applicable
Evaporation Rate:	Not Applicable
Boiling Point:	Approx. 88°C
Melting Point:	Not Applicable
pH as Supplied:	Not Applicable
Specific Gravity:	1.08 g/cm ³

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

10. Stability and Reactivity

Stability: Stable at ambient temperatures.

Conditions to Avoid: Avoid extremes of temperature, especially frost and freezing conditions.

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Thermal decomposition or combustion may produce oxides of carbon and nitrogen, various hydrocarbons, and/or ammonia which may be irritating or harmful.

Incompatibility: Strong oxidants such as liquid chlorine, enriched gaseous or liquid oxygen, and sodium or calcium hypochlorite.

11. Toxicological Information

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

12. Ecological Information

Ecological Information: Product is not expected to be harmful to the aquatic environment

13. Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14. Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

PRODUCT NAME: Drill-Slip

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Safety Data Sheet No: 5006EC

15.Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk Phrases: No label required.

European Community Safety Phrases: None

16.Other Information

Recommended Use:

Drilling Fluid Additive

References:

Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Drill-Sorb

Page 1 of 6

Safety Data Sheet No: 5007EC

1. Identification of the Substances and Details of the Company

Product Description: Super Absorbent Polymer

Date Prepared: January 2007

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White, granular solid with little or no odour.

Statement of Hazards: This product contains no hazardous ingredients.

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Avoid prolonged or repeated inhalation of dust or skin contact. Slip hazard when wet.

Primary Route(s) of Entry: Inhalation

Signs and Symptoms of Exposure: May cause slight skin irritation especially after prolonged or repeated exposure. Eye contact may produce slight irritation and/or redness. Inhaled dust may cause respiratory irritation.

Ingestion: Low toxicity product.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

Target Organ(s): Not Applicable

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Cross-linked acrylic co-polymer

MIS Rating: Health - 0, Flammability - 1, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

<u>CHEMICAL IDENTITY</u>	<u>CAS No.</u>	<u>OSHA PEL</u> <u>(TWA)</u>	<u>ACGIH TLV</u> <u>(TWA)</u>	<u>EH 40/2002</u> <u>(TWA)</u>
Cross-linked acrylic co-polymer	76774-25-9	NE	NE	NE
Particulates Not Otherwise Specified (PNOS)		15 mg/m ³	10 mg/m ³	10 mg/m ³
Inhalable		5 mg/m ³	3 mg/m ³	4 mg/m ³

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

Respirable

OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE = Not Established**

ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr. TWA, 40 hr. week

UK EH40/2002 - United Kingdom EH40/2002 Occupational Exposure Limits, 8 hr. TWA

4. First Aid Measures

Ingestion: Do not give an emetic unless directed by a physician. Never give anything by mouth to an unconscious person. If patient is conscious, give a pint of water to drink, with additional cupfuls every 15 minutes.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: Move to fresh air. For all exposures involving irritation, seek medical attention.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Call a physician

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable

Autoignition Temperature: Not Evaluated

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. However, wetted product presents a slip hazard.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Hazardous Decomposition Products: Oxides of carbon and nitrogen.

Emergency Response Guidebook Information: No ERG # indicated. Handle as a combustible material.

6. Accidental Release Measures

Accidental Release Measures: Product becomes slippery and difficult to handle when wet; spills are best handled while still dry. Sweep up and collect dry product. Absorb wet product with vermiculite or other inert material. Then water wash area to waste treatment to eliminate slip hazard.

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

7. Handling and Storage

Precautions: Good personal hygiene practices can reduce potential exposure. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

8. Exposure Controls/Personal Protection

Skin Protection: PVC or other plastic, vinyl or rubber gloves recommended.

Eye Protection: Safety glasses or goggles recommended,

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator based on consideration of airborne workplace concentration and duration of exposure arising from intended end use.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour:	White granular powder with little or no odour.
Odour Threshold:	Not Applicable
Solubility in Water:	Swells to form a gel in water
Vapor Pressure (mm Hg):	Not Applicable
Vapor Density (Air = 1):	Not Applicable
Decomposition Temperature:	> 200°C
Percent Volatile:	None expected above trace levels
Flammability:	May smolder
Boiling Point:	Not applicable
Melting Point:	Not Applicable
Freezing Point:	Not Applicable
Bulk Density:	0.8 g/cm ³
Evaporation Rate:	Not Applicable
VOC:	Not Evaluated

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Thermal decomposition or combustion may produce oxides of carbon.

Incompatibility: Strong oxidants such as liquid chlorine, enriched gaseous or liquid oxygen, and sodium or calcium hypochlorite.

11. Toxicological Information

Acute Oral Toxicity: Low oral toxicity. By analogy to similar materials, the acute LD50 (rat) is expected to be > 2000 mg/kg.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Skin Irritation: No data available

Intravenous LD50: No data available

Toxicologically Synergistic Products: None known.

12. Ecological Information

Ecological Information: Product not considered toxic to aquatic organisms. By analogy to similar products, the following results are expected:

Fish Toxicity:

LC₅₀ /96 hr / Freshwater fish: 357 mg/l

EC₅₀ /48 hr / Daphnia Magra: 212 mg/l

13. Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not a RCRA regulated hazardous waste.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations. Care must be taken to prevent environmental contamination from the disposal of material, residues, and containers.

PRODUCT NAME: Drill-Sorb

Page 5 of 6

Safety Data Sheet No: 5007EC

14. Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

15. Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

PRODUCT NAME: Drill-Sorb

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Safety Data Sheet No: 5007EC

16. Other Information

Recommended Use: Drilling fluid solidifier and lost circulation material

References: Registry for Toxic Effects of Chemical Substances (RTECS), 1995.

Patty's Industrial Hygiene and Toxicology.

2001 ACGIH Guide to Occupational Exposure Limits

United Kingdom EH40/2002 Occupational Exposure Limits

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Potassium Chloride (KCl)

Page 1 of 3

Safety Data Sheet No: 5024EC

1. Identification of the Substances and Details of the Company

Company Name and Address:

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Date Prepared: 1st February 2007

Date Reviewed: July 2013

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

No specific risks or hazards to the best of our knowledge

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Potassium Chloride (KCl)

<u>CHEMICAL IDENTITY</u>	<u>CAS No.</u>	<u>% CONC.</u>	<u>EINECS</u>	<u>CLASSIFICATION</u>
Potassium Chloride	7447-40-7	99.3	231-211-8	
Potassium hexacyanoferrate	14459-95-1	0.5		

4. First Aid Measures

Ingestion: In the event to accidental ingestion, rinse mouth with water. If patient is conscious give water to drink. If patient feels unwell seek medical attention.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water. If irritation persists seek medical attention.

Inhalation: Move from exposure to fresh air. Consult a physician if necessary.

Eyes: May cause mild irritation. Irrigate thoroughly with water. Consult physician if irritation persists.

5. Fire Fighting Measures

Fire Fighting Extinguishing Media: Water, Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: Avoid over-inhalation of vapours

Fire and Explosion Hazards: Decomposition at high temperatures

PRODUCT NAME: Potassium Chloride (KCl)

Page 2 of 3

Safety Data Sheet No: 5024EC

6. Accidental Release Measures

Accidental Release Measures: Limit product dispersion. Avoid flames and other ignition sources. Spillages should be swept or vacuumed and then area washed thoroughly with water.

7. Handling and Storage

Precautions: Good personal hygiene practices can reduce potential exposure. Avoid high dust levels and maintain adequate ventilation. Wash with soap and water following any contact with this product, as well as before breaks and meals. Shower and change clothing at end of work shift. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place away from direct heat sources and protected from extreme temperatures.

8. Exposure Controls/Personal Protection

Skin Protection: Wear impervious gloves and clothing, avoid contact with skin

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator as required to control exposure to respirable particulate.

Personal Protective Equipment: Wear protective glasses with side pieces in dusty areas.

9. Physical and Chemical Properties

Appearance and Odor: White powder/granules.

Odour: None

Boiling Point: Sublimes at 1500°C

Bulk Density: 1.99g/cm³

Melting Point: 776°C

Flash Point: Not flammable

Ignition Temperature: N/A

Solubility in Water: Complete

10. Stability and Reactivity

Stability: Stable during stated shelf life

Incompatibility: Avoid excessive temperatures, flame or other sources of ignition

PRODUCT NAME: Potassium Chloride (KCl)

Page 3 of 3

Safety Data Sheet No: 5024EC

11.Toxicological Information

Ingestion Effects (Rat):	LD50 2430 mg/kg
Ingestion Effects (inf):	LDLo 938 mg/kg.
Skin Irritation Effects (Rat):	LD50 660 mg/kg
Ingestion Effects (Man):	LDLo 20 mg/kg
Intravenous (Mouse):	LD50 117 mg/kg

12.Ecological Information

No data

13.Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations. Care must be taken to prevent environmental contamination from the disposal of material, residues, and containers.

14.Transport information

NON HAZARDOUS for transportation

15.Regulatory Information

NON HAZARDOUS CLASSIFICATION

16.Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Lime

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Safety Data Sheet No: 5036EC

1. Identification of the Substances and Details of the Company

Product Description: Alkali

Date Prepared: February 7, 2011

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: CALCIUM HYDROXIDE

Use of substance/preparation: An alkali for use in pH control of potable water, effluent treatment, flue gas treatment and construction

3. Hazards Identification

Main Hazards: Irritating to skin. Risk of serious damage to eyes.

4. First Aid Measures (Symptoms)

Eye Contact: Causes painful irritation and may cause serious damage to eyes.

Ingestion: Unlikely to cause reactions. Larger doses may irritate gastrointestinal tract.

Skin Contact: Irritant, may cause burns in the presence of moisture.

Inhalation: Irritating to the respiratory tract in high concentrations.

4. First Aid Measures (Action)

Eye Contact: SPEED IS ESSENTIAL. Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Do not induce vomiting. Wash out mouth with water. Transfer to hospital as soon as possible.

Skin Contact: Irritant, may cause burns in the presence of moisture.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. Seek medical attention if necessary.

PRODUCT NAME: Lime

Page 2 of 4

Safety Data Sheet No: 5036EC

5. Fire Fighting Measures

Extinguishing Media: Non-combustible and inhibits the spread of flames. Use extinguishing media appropriate to the surrounding conditions.

Protection of Fire Fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

6. Accidental Release Measures

Personal Precautions: Refer to section 8 of SDS for personal protection details.

Environmental Precautions: If product has entered a water course or sewer or has contaminated soil or vegetation notify authorities.

Clean-up Procedures: Transfer to a closable, labeled salvage container for disposal by an appropriate method. Avoid creating dust.

7. Handling and Storage

Handling requirements: Avoid contact with eyes, skin or clothing. Avoid inhalation of dust.

Storage Information: Store in a cool dry environment free from draughts. Bulk storage should be in purpose built silos. Product in bags should be stored in draught free brick or concrete buildings. Avoid incompatible materials and conditions – see section 10 of SDS.

8. Exposure Controls/Personal Protection

Skin Protection:	Wear protective clothing.
Respiratory Protection:	Wear a dust mask if required.
Hand Protection:	Protective gloves
Eye Protection:	Safety goggles. Ensure eye bath is to hand.
WEL (8hr TWA):	5mg/m ³

9. Physical and Chemical Properties

Appearance:	Fine Powder
Odour:	Faint “earthy” odour
Melting Point/Range °C:	580
Colour:	White
Solubility in Water:	1.8 g/l @ 10° C

PRODUCT NAME: Lime

Page 3 of 4

Safety Data Sheet No: 5036EC

pH: 12.4 (2 g/l)

10. Stability and Reactivity

Conditions to Avoid: Temperatures over 580°C.

Stability: Stable under normal conditions.

Materials to avoid: Strong acids. Aluminium. Lead Brass. Tin and their alloys. DO NOT MIX WITH ANY OTHER CHEMICALS.

Hazardous Decomposition Products: Decomposes at approximately 580°C to form calcium oxide (quicklime).

11. Toxicological Information

Routes of exposure: Prolonged and repeated skin contact may cause dermatitis.

12. Ecological Information

Ecotoxicity: HYDRATED LIME.

Fish Toxicity: 96H LC50 > 100 mg/l

Mobility: Sparingly soluble in water to form alkaline solution. Low mobility in most ground conditions.

Persistence and degradability: Not biodegradable. Reacts with the atmosphere and dissolved carbon dioxide to form calcium carbonate.

Bioaccumulative potential: No bioaccumulation potential.

Other adverse effects: High concentrations (>100 mg/l) may have a sterilizing effect in sewage works. Product is extensively used in treatment of acid wastes and sewage sludges.

13. Disposal Considerations

Disposal Operations: Dispose of through approved waste disposal operatives.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14. Transport information

ADR/RID

PRODUCT NAME: Lime

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Safety Data Sheet No: 5036EC

IMDG/IMO:

IATA/ICAO:

15.Regulatory Information

Hazard Symbols: Irritant



Risk phrases: R38: Irritating to skin
R41: Risk of serious damage to eyes.

Safety Phrases: S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37: Wear suitable gloves.

S39: Wear eye//face protection.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16.Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

SAFETY DATA SHEET

Product Trade Name: **TUNED SPACER E+**

Revision Date: 04-Jan-2011

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of Substances or Preparation

Product Trade Name: TUNED SPACER E+

Synonyms: None

Chemical Family: Mineral

Application: Cement Spacer

Company Undertaking Identification
Halliburton Energy Services
Halliburton House, Howemoss Place
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

Prepared By
Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARDS IDENTIFICATION

Risk Phrases
None

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT	EINECS	UK OEL	Germany MAK/TRK	Netherlands	EEC Classification
Crystalline silica, quartz	14808-60-7	1 - 5%	238-878-4	0.3 mg/m ³	0,15 mg/m ³	0,075 mg/m ³	Not applicable
Bentonite	1302-78-9	60 - 100%	215-108-5	10 mg/m ³	Not applicable	Not applicable	Not applicable
Crystalline silica, tridymite	15468-32-3	0 - 1%	239-487-1	0.1 mg/m ³	Not applicable	0,075 mg/m ³	Not applicable
Crystalline silica, cristobalite	14464-46-1	0 - 1%	238-455-4	0.1 mg/m ³	0,15 mg/m ³	0,075 mg/m ³	Not applicable

4. FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.
Notes to Physician	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons	None known.
Special Exposure Hazards	Decomposition in fire may produce toxic gases.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures	None known.
Procedure for Cleaning / Absorption	Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions	This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.
Storage Information	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.
Respiratory Protection	Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.
Hand Protection	Normal work gloves.
Skin Protection	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	White to light straw
Odor:	Odorless
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	2.65
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/m ³):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m ³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m ³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	5
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated

Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Oxides of sulfur. Carbon monoxide and carbon dioxide. Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A). Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).
Skin Contact	May cause mechanical skin irritation.
Eye Contact	May cause eye irritation.
Ingestion	None known
Aggravated Medical Conditions	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.
Chronic Effects/Carcinogenicity	Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis. Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to <u>IARC Monograph 68, Silica, Some Silicates and Organic Fibres</u> (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2). There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.
Other Information	For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Refer to <u>IARC Monograph 68, Silica, Some Silicates and Organic Fibres</u> (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Not determined
Bio-accumulation	Not determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

EC Supply labeling Requirements This product is not subject to the labeling requirements of EC Directives 67/548/EEC and 88/379/EEC as amended.

Classification Crystalline silica is not classified as a carcinogen in EU Council Directives 67/548/EEC and 88/379/EEC.

Risk Phrases None

Safety Phrases None

EINECS Inventory This product, and all its components, complies with EINECS

Germany, Water Endangering Classes (WGK) WGK 0: Generally not water endangering.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

*****END OF MSDS*****

PRODUCT NAME: CLEAR-STABILISER® HV

Page 1 of 5

Safety Data Sheet No: 5022EC

1. Identification of the Substances and Details of the Company

Product Description: Fluid Loss Control Additive

Date Prepared: January 2004

Suppliers Name and Address:

Date Reviewed: December 2013

Clear Solutions International Ltd
Unit B3
Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White/off white powder, odourless

Statement of Hazards: This product is not classified as hazardous under EEC directives 67/548/EEC or 88/3/379/EEC

Precautionary Measures:

Eye Contact – Dry powder may cause foreign body irritation in some individuals. Solutions are non-irritating.

Skin Contact – Prolonged contact with dry powder may cause drying or chapping of the skin. No evidence of other adverse effects known.

Inhalation – No evidence of adverse effects from available information. However, excessive inhalation of dust can mechanically impede respiration.

Ingestion – No evidence of adverse effects from available information.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: High Purity Sodium Carboxymethyl Cellulose (Sodium CMC)

HMIS Rating: Health – 0, Flammability – 0, Reactivity – 0, Protective Equipment – See Section 8

		EXPOSURE LIMITS		
CHEMICAL IDENTITY	CAS NO.	OSHA PEL (TWA)	ACGIH TLV (TWA)	DFG MAKs (TWA)
Sodium CMC	9004-32-4	NE	NE	NE
Particulates not otherwise specified (PNOS)				
Inhalable		15 mg/m ³	10 mg/m ³	4 mg/m ³
Respirable		5 mg/m ³	3 mg/m ³	1.5 mg/m ³

PRODUCT NAME: CLEAR-STABILISER® HV

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Safety Data Sheet No: 5022EC

OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE** = Not Established
ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr. TWA, 40 hr. week
DFG MAK - Federal Republic of Germany Maximum Concentration Values in the Workplace.

4. First Aid Measures

Eye Contact: Flush with water.

Ingestion: Drink large quantities of water.

Skin: Remove contaminated clothing and launder before re-use. Wash affected area with soap and water.

Inhalation: Move to fresh air.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable (Warning: combustible dust)

Autoignition Temperature: 460 °C

Lower Explosion Limit: 156 g/m³

Sensitivity to Mechanical Impact: None

Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.

Fire Fighting Equipment: No special procedures. Wetted product presents a slip hazard.

Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.

Hazardous Decomposition Products: Oxides of Carbon and Nitrogen.

Emergency Response Guidebook Information: No ERG # indicated. Handle as a combustible material.

6. Accidental Release Measures

Accidental Release Measures: Spilt material is slippery; sweep up from floor. This powder when dispersed in air represents an explosion hazard.

7. Handling and Storage

Precautions: Handle in a well ventilated area. Wash thoroughly after handling. If clothing becomes contaminated, remove and launder or dry-clean before reuse.

Storage Information: Store in a cool, dry place.

PRODUCT NAME: CLEAR-STABILISER[®] HV

Page 3 of 5

Safety Data Sheet No: 5022EC

8. Exposure Controls/Personal Protection

Skin Protection: Not normally required

Respiratory Protection: Use approved dust mask/respirator P2 or NIOSH approved dust respirator as required to control exposure to respirable particulates.

Personal Protective Equipment: Use appropriate respiratory protection for respirable particulate based on consideration of airborne workplace concentration and duration of exposure arising from intended end use.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g apron, face shield, etc) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour: White to off-white free flowing powder

Odour Threshold: Odourless

Freezing Point: Not Applicable

Vapor Pressure (mm Hg): Not Applicable

Vapor Density (Air = 1): Not Applicable

Decomposition Temperature: Not Evaluated

Boiling Point: Not applicable

Melting Point: Not Applicable

Solubility in Water: Complete

Bulk Density: 0.3-0.8 g/cc.

Evaporation Rate: Not Applicable

VOC: Not Evaluated

pH: 6 – 8.5 (1% solution)

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: Biodegradable: Thermal decomposition or combustion may produce oxides of carbon and nitrogen.

Incompatibility: Oxidiser

11. Toxicological Information

Acute Oral Toxicity: Low oral toxicity.

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Toxicologically Synergistic Products: None known.

PRODUCT NAME: CLEAR-STABILISER[®] HV

Page 4 of 5

Safety Data Sheet No: 5022EC

12. Ecological Information

Ecological Information: Product not considered toxic to aquatic organisms.

Degradation Biotic: SCAS Test: Inherently biodegradable

13. Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not classified as hazardous for disposal purposes by RCRA Standards.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14. Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

15. Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

European Inventory of Commercial Chemical Substances: All the components of this product are listed on the EINECS Inventory or exempt from notification requirements.

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

PRODUCT NAME: CLEAR-STABILISER[®] HV

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Safety Data Sheet No: 5022EC

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

Recommended Use: Bore hole stabilizer

16. Other Information

References: 2001 ACGIH Guide to Occupational Exposure
Registry for Toxic Effects of Chemical Substances (RTECS) 1995
Patty's Industrial Hygiene and Toxicology

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Pure-Bore[®]
Safety Data Sheet No: 5001EC

Page 1 of 5

1. Identification of the Substances and Details of the Company

Product Description: Biodegradable Drilling Fluid

Date Prepared: January 05/2004

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Description: White powder with a slight odor.

Statement of Hazards: This product contains no hazardous ingredients. It is not classified as a carcinogen according to IARC, OSHA, or NTP.

Precautionary Measures:

Eye Contact – Dry powder may cause foreign body irritation in some individuals. Solutions are non-irritating.

Skin Contact – Prolonged contact with dry powder may cause drying or chapping of the skin. No evidence of other adverse effects known.

Inhalation – No evidence of adverse effects from available information. However, excessive inhalation of dust may cause irritation and can mechanically impede respiration.

Ingestion – No evidence of adverse effects from available information. LD₅₀ is greater than 5000 mg/kg.

Medical Conditions Aggravated by Exposure: Existing respiratory conditions.

3. Composition/Information on Ingredients

PRODUCT IDENTIFICATION:

Chemical Name: Natural Polysaccharides

HMIS Rating: Health – 0, Flammability - 1, Reactivity - 0, Protective Equipment – See Section 8

EXPOSURE LIMITS

CHEMICAL IDENTITY		OSHA PEL (TWA)	ACGIH TLV (TWA)	DFG MAKs (TWA)
		NE	NE	NE
Particulates Not Otherwise Specified (PNOS)	Inhalable	15 mg/m ³	10 mg/m ³	4 mg/m ³
	Respirable	5 mg/m ³	3 mg/m ³	1.5 mg/m ³

PRODUCT NAME: Pure-Bore[®]
Safety Data Sheet No: 5001EC

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OSHA PEL - OSHA Permissible Exposure Limit, 8 hour Time-Weighted Average **NE** = Not Established
ACGIH TLV - American Conference of Governmental Industrial Hygienists Threshold Limit Value, 8 hr.
TWA, 40 hr. week
DFG MAK - Federal Republic of Germany Maximum Concentration Values in the Workplace.

4. First Aid Measures

Eye Contact: Remove contact lenses, promptly wash eyes with plenty of water. Obtain medical advice if irritation persists.
Ingestion: Rinse mouth thoroughly, drink plenty of water. DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Seek medical attention if large amounts ingested.
Skin: Remove contaminated clothing and launder before re-use. Wash affected area immediately with lots of water. Get medical attention if any discomfort continues.
Inhalation: Move to fresh air. Get medical attention if any discomfort continues.

5. Fire Fighting Measures

Flash Point (*Method Used*): Not Applicable (Warning: combustible dust)
Autoignition Temperature: Not Evaluated
Fire Fighting Extinguishing Media: Carbon dioxide, dry chemical or foam.
Fire Fighting Equipment: No special procedures. However, wetted product presents a slip hazard.
Fire and Explosion Hazards: Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting, and eliminate open flame and other sources of ignition.
Hazardous Decomposition Products: None. (Oxides of carbon and nitrogen formed when burned).

6. Accidental Release Measures

Accidental Release Measures: Product becomes slippery and difficult to handle when wet; spills are best handled while still dry. Sweep up and collect dry product. Absorb wet product with vermiculite or other inert material. Then water wash area to waste treatment to eliminate slip hazard.
Personal Precautions: Wear protective clothing as described in Section 8 of this safety data sheet.

7. Handling and Storage

Precautions: Avoid contact with eyes, skin or clothing. Avoid breathing vapors, mist, fume or dust. Wash thoroughly after handling. If clothing becomes contaminated, remove and launder or dry-clean before reuse.
Storage Information: Store in a cool, dry place.

PRODUCT NAME: Pure-Bore[®]

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Safety Data Sheet No: 5001EC

8. Exposure Controls/Personal Protection



Skin Protection: Avoid unnecessary skin contact. Wear appropriate clothing to prevent repeated or prolonged skin contact.

Respiratory Protection: Respiratory protection must be used if air contamination exceeds acceptable level. Use chemical cartridge protection with appropriate cartridge. Gas cartridge suitable for organic substances.

Eye protection: Use approved safety goggles or face shield.

Engineering Controls: Use local exhaust as required to maintain exposures below applicable occupational exposure limits.

Additional Information: Provide eyewash station(s). Select additional protective equipment (e.g. apron, face shield, etc.) depending on conditions of use.

9. Physical and Chemical Properties

Appearance and Odour:	White to off-white free flowing powder
Odour Threshold:	Not Applicable
Freezing Point:	Not Applicable
Vapor Pressure (mm Hg):	Not Applicable
Vapor Density (Air = 1):	Not Applicable
Decomposition Temperature:	Not Evaluated
Molecular Weight:	1,000,000 (approx.)
Boiling Point:	Not applicable
Melting Point:	Not applicable
Solubility in Water:	Complete
Bulk Density:	0.3 - 0.80 g/cm ³ (approx.)
Evaporation Rate:	Not Applicable
VOC:	Not Evaluated
pH:	6.0 – 8.5 (0.5% solution)

10. Stability and Reactivity

Conditions to Avoid: Avoid wet and humid conditions.

PRODUCT NAME: Pure-Bore[®]
Safety Data Sheet No: 5001EC

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Stability: Stable

Hazardous Polymerization: Will not occur

Hazardous Decomposition Products: None (biodegradable)

Incompatibility: Strong oxidants such as liquid chlorine, enriched gaseous or liquid oxygen, and sodium or calcium hypochlorite.

11.Toxicological Information

Acute Oral Toxicity: Low oral toxicity. Acute Oral LD50 (rat) > 10,000 - 27000mg/kg. No adverse effects have been noted in chronic feeding studies using laboratory animals and humans

Carcinogenicity: Not listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Toxicity: No data for product. No effects anticipated.

Teratogenicity: No data for product. No effects anticipated.

Skin Irritation: Dry powder may cause foreign body irritation in some individuals.

Toxicologically Synergistic Products: None known.

12.Ecological Information

Ecotoxicity: Product not considered as dangerous for the environment.

13.Disposal Considerations

RCRA Hazard Class: This product, when unadulterated, is not classified as hazardous for disposal purposes by RCRA Standards.

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

14.Transport information

DOT – Proper Shipping Name: Not a DOT/IMO Hazardous Material.

Road Transport ADR/RID: Not a dangerous substance as defined in the above regulations.

Inland Navigation AND/ADNR: Not a dangerous substance as defined in the above regulations.

Maritime Transport IMDG: Not a dangerous substance as defined in the above regulations.

Air Transport ICAO/IATA: Not a dangerous substance as defined in the above regulations.

PRODUCT NAME: Pure-Bore[®]

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Safety Data Sheet No: 5001EC

15.Regulatory Information

SARA 313: This product contains the following chemicals subject to annual release reporting requirements under the SARA section 313 (40 CFR 372): None

CERCLA Section 103 Reportable Quantity: None

TSCA Section 5(e) – Consent Order / SNUR: This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status: All chemical(s) comprising this product are either exempt or listed on the TSCA Inventory.

Chemical Weapons Convention (CWC): This product does not contain any chemicals listed under the Chemical Weapons Convention Schedules of Chemicals.

California Proposition 65: This product contains no chemicals which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

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Canadian Environmental Protection Act: All the components of this product are listed on the Canadian Domestic Substances List or exempt from notification requirements.

Japan MITI: All the components of this product are existing chemical substances as defined in the Chemical Substance Control Law

Australian Inventory of Chemical Substances: All the components of this product are listed on the AICS Inventory or exempt from notification requirements.

Canadian WHMIS Classification: Not hazardous

European Community Labeling Classification: No label required

European Community Risk and Safety Phrases: None

16.Other Information

Recommended Use: Biodegradable Drilling Fluid

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

APPROVAL CONFIRMATION

Product name/designation	Pure-Bore®
Approval Category(ies)	A.9 Other Chemicals
Approval Holder (Name & Address)	Clear Solutions International Ltd Unit B3 Wem Industrial Estate Soulton Road Wem Shropshire SY4 5SD
Instructions for Use	TECHNICAL DATA SHEET AND INSTRUCTIONS FOR USE - WATER WELL DRILLING FLUIDS Pure-Bore® Version 01 June 2012
DWI Ref Number	DWI 56.4.1118

The Secretary of State for Environment, Food and Rural Affairs in respect of relevant water suppliers¹ whose area of supply is wholly or mainly in England, and the Welsh Ministers in respect of relevant water suppliers whose area of supply is wholly or mainly in Wales, in exercise of their powers under Regulation 31(4)(a) of the Water Supply (Water Quality) Regulations 2000 and Regulation 31(4)(a) of the Water Supply (Water Quality) Regulations 2010 (Wales) respectively hereby approve the introduction or application of the product detailed above, in accordance with the following Conditions:

CONDITIONS OF APPROVAL

The above named product is approved for application in England and Wales² by a relevant water supplier for public water supply purposes subject to the following conditions:

1. Relevant water suppliers shall be provided with a copy of the Instructions for Use (IFU) detailed above and use of the product must be in accordance with the IFU.

2. The Drinking Water Inspectorate (DWI) must be notified, in advance and in writing, by the approval holder detailed above, in respect of any change in –

- a) The Instructions for Use
- b) The formulation of the approved product, including change in source or identity of raw materials
- c) The manufacturing process, including location of manufacture
- d) The designation of the approved product
- e) The name, address or ownership of the organisation holding the approval

Failure to notify such changes will result in approval being withdrawn.

3. The approval holder shall ensure that the product is tested for conformity with its formulation, and the source or identity of its raw materials, at such intervals and by such persons, as may be determined by the DWI and the results of such testing shall be sent to DWI.

4. The use of the Drinking Water Inspectorate, DEFRA or Welsh Government logos, in respect of any approved product (including on the product or in editorial or advertising/trade copy) is not permitted.

5. The following product specific condition(s) apply – none

Signed by authority of the Secretary of State
and the Welsh Ministers

Date of issue: 11/11/2013
Date of Expiry: 11/11/2018



Prof. Jeni Colbourne MBE

¹ Relevant water suppliers shall include water undertakers, water supply licensees and inset appointees.

² Separate approval arrangements apply in Scotland and Northern Ireland

Pure-Bore®

Clear Solutions International Ltd , Unit B3 Wem Industrial Estate, Saulton Road , Wem , Shropshire, SY4 5SD, United Kingdom

Registration No: 24868 Version No: 1 Expiry Date: 21/03/2015

Application Process System		Dose Rate		Worst Aquatic Toxicity Test		Number of Aquatic Toxicity Tests		OCNS Group		100% PLONOR
CHARM is not applicable to this process system		3000 ppm		N/A		N/A		E		Yes
Application	Surfactant Type	Drilling Mud Density kg/m3	Sediment Reworker	Biodegradation Value/ %	Time/Days	Protocol	Minimum Log Po/w	Koc	Koc Protocol	Organic C Content
CHARM N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TO WHOM IT MAY CONCERN

29th November 2013

Pure-Bore® - the drilling fluid for a cleaner tomorrow.

We are delighted to announce that Pure-Bore® has been granted approval under regulation 31(4)a of the Water Supply (Water Quality) Regulations 2000 and the Water Supply (Water Quality) Regulations 2010 and therefore approved for use in public water supplies and included in the "List of Approved Products for use in Public Water Supply in the United Kingdom".

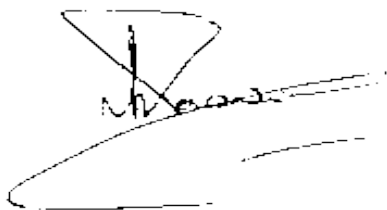
Pure-Bore® was developed by, and is manufactured by the Clear Solutions Group of Companies.

Pure-Bore® produces ultra efficient drilling fluid properties, providing exceptional borehole stability, optimised hole cleaning efficiency and maximised drilling rates. Pure-Bore® also significantly aids the development of producing wells, effectively protecting the reservoir during the drilling phase. After drilling it is possible to break the Pure-Bore® drilling fluid with calcium hypochlorite leaving the reservoir unaffected by the drilling process and free to produce at maximum levels.

Pure-Bore® is PLONOR, and the CEFAS registration for Pure-Bore® was granted in March 2012, with Pure-Bore® achieving the best possible environmental rating under this registration scheme (Gold rating).

The latest application to the Drinking Water Inspectorate (DWI) for Pure-Bore® demonstrates Clear Solutions ongoing commitment to supporting our customers and further strengthens our unrivalled environmental credentials.

For further information please feel free to contact myself at Clear Solutions.



Mike Massey

Technical Manager

PRODUCT NAME: Soda Ash (Sodium Carbonate- Na_2CO_3)

Page 1 of 4

Safety Data Sheet No: 5026EC

1. Identification of the Substances and Details of the Company

Product Description: pH Increaser

Date Prepared: 01/08/2009

Company Name and Address:

Date Reviewed: July 2013

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

PRODUCT IDENTIFICATION:

Chemical Name: Sodium Carbonate – Na_2CO_3

Composition: Contains 98% (MIN) Sodium Carbonate, 0.7% (MAX) Sodium Bi-Carbonate and 0.6% (MAX) Sodium Chloride
Pouring Density: 480-600 kg/m³

Chemical Name	CAS No	%	EC Number	Symbol	R-Phrases
Sodium Carbonate – Na_2CO_3	497-19-8	100	209-838-8	Xi	R36

3. Composition/Information on Ingredients

Statement of Hazards: Irritating to eyes

4. First Aid Measures

When contacting a physician, take this safety datasheet with you.

Skin: Wash skin with plenty of soap and water. Remove contaminated clothing. If skin blistering occurs or continuous irritation consult a physician.

Inhalation: Remove from exposure into fresh air. If breathing difficulties occur give oxygen. In case of failing or failed breathing, provide artificial respiration but not mouth to mouth ventilation. Obtain medical emergency support urgently.

Eyes: Flood eyes with plenty of water for at least 10 minutes holding eye open. Obtain medical attention immediately.

Ingestion: Wash out mouth with clean water. Drink 240-300ml water to dilute stomach contents, seek medical advice. DO NOT induce vomiting.

PRODUCT NAME: Soda Ash (Sodium Carbonate- Na_2CO_3)

Page 2 of 4

Safety Data Sheet No: 5026EC

5. Fire Fighting Measures

Fire Fighting Extinguishing Media:

Non combustible – select extinguishing agent appropriate to surrounding materials.

Fire Fighting Equipment:

Fire fighters should wear self-contained positive pressure breathing apparatus (SCBA) and full turnout gear.

Fire and Explosion Hazards:

Hazardous Combustion Product – CARBON DIOXIDE

This product may give rise to hazardous fumes in a fire

Hazardous Decomposition Products:

Reaction with water or moist air may give rise to oxides of carbon

6. Accidental Release Measures

Personal Protection: Wear appropriate protective clothing. Wear respiratory protection

Methods for Cleaning Up: Small spillages may be flushed with large quantities of water. Large spillages should be collected for disposal, sweep up and place in suitable containers for recovery or disposal.

Advise authorities if spillage enters water course or sewer or has contaminated soil or vegetation

7. Handling and Storage

Normal precautions for the handling of chemicals should be observed.

Precautions: Use in well ventilated area. Keep electrical apparatus in particular free of dust. Avoid inhalation. Avoid contact with eyes, skin and clothing. Emergency shower and eye wash facilities should be readily available.

Storage Information: Store in a cool, dry, well ventilated, under cover area. Keep containers tightly closed to prevent ingress of moisture. Avoid storing sacks in large stacks to prevent product caking. Use original container

8. Exposure Controls/Personal Protection

Engineering Measures: Use of basic principles of Industrial Hygiene will enable this product to be used safely.

Hygiene Measures: Wash hands after handling compounds and before eating, smoking and using lavatory and at the end of the day.

Workplace exposure limits: Not available

PRODUCT NAME: Soda Ash (Sodium Carbonate- Na_2CO_3)

Page 3 of 4

Safety Data Sheet No: 5026EC

Personal Protective Equipment

Skin Protection: Wear dust proof overalls with hood and rubber boots. PVC or Rubber gloves.

Respiratory Protection: Dust respirator.

Eyes: Chemical Goggles

9. Physical and Chemical Properties

Appearance:	White Solid or Powder
Odour:	None
Boiling Point:	1600°C
Melting Point:	851°C
Bulk Density:	Not available
pH:	Alkaline
Flash Point:	Not available
Solubility in Water:	22g/100ml

10. Stability and Reactivity

Stability: Stable under normal conditions

Conditions to Avoid: Exposure to water or moisture

Materials to avoid: Strong acids. Acid Anhydrides. Aluminium. Lithium. Phosphorous Pentoxide. Water

Hazardous Decomposition Products: Reaction with water or moist air may produce oxides of carbon.

11. Toxicological Information

Acute Toxicity: LD50/oral/rat = 4090mg/kg.

Local Effects: Hazardous in case of eye contact – irritant.

12. Ecological Information

Ecotoxicity: This product is rated as practically non-toxic to aquatic species. High concentrations injure aquatic life by effect on pH.

PRODUCT NAME: Soda Ash (Sodium Carbonate- N_2CO_3)

Page 4 of 4

Safety Data Sheet No: 5026EC

13. Disposal Considerations

Waste Disposal Method: Disposal must be arranged in accordance with local and national regulations.

Waste Classification: Not applicable

14. Transport information

NON HAZARDOUS FOR TRANSPORT

15. Regulatory Information

Hazard Symbol:



Classification: Irritant

Risk Phrases: R36 Irritating to eyes

Safety Phrases: S22 Do not breathe dust.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Product Use: Classification and labeling have been performed according to EU directives 67/548/EEC, 88/379/EEC, including- Consumer applications.

16. Other Information

Safety Data Sheet prepared according to Annex II of the REACH Regulation (EC)1907/2006 of the European Parliament.

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.

PRODUCT NAME: Sodium Bicarbonate

Page 1 of 3

Safety Data Sheet No: 5010EC

1. Identification of the Substances and Details of the Company

Company Name and Address:

Clear Solutions International Ltd
Unit B3, Wem Industrial Estate
Soulton Road
Wem
Shropshire SY4 5SD
ENGLAND

Date Prepared:

Date Reviewed: July 2013

Tel: +44 (0) 1939 235754

Fax: +44 (0) 1939 232399

2. Hazards Identification

Chemical Name Sodium Bicarbonate
CAS Number 144-55-8
EINECS Number 205-633-8

3. Composition/Information on Ingredients

No significant hazard

Skin Contact There may be mild irritation at the site of contact.

Eye Contact There may be irritation and redness.

Inhalation No symptoms.

Ingestion Harmful if swallowed in large quantities.

4. First Aid Measures

Skin Contact Rinse thoroughly with soap & water and seek medical attention if symptoms persist.

Eye Contact Bathe the eye with running water for 15 minutes.

Inhalation Not applicable.

Ingestion Wash out mouth with water. Do not induce vomiting. Give 200-300 ml of water to drink. Obtain medical attention.

5. Fire Fighting Measures

Extinguishing media Use extinguishing media appropriate to the surrounding conditions.
In combustion emits toxic fumes.
Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

PRODUCT NAME: Sodium Bicarbonate

Page 2 of 3

Safety Data Sheet No: 5010EC

6. Accidental Release Measures

Personal precautions	Refer to section 8 for personal protection details.
Environmental risk	Avoid making dust clouds.
Clean up procedures	Transfer to a closable, labelled salvage container for disposal by an appropriate method. Wash the spillage site with large amounts of water.

7. Handling and Storage

Handling	No special handling precautions are necessary.
Storage	Do not store with acids. Store in cool, well ventilated area.

8. Exposure Controls/Personal Protection

Hand protection	Protective gloves.
Skin protection	Normal work wear.
Eye protection	Wear safety glasses.
Respiratory protection	Use dust masks. Ensure adequate ventilation and dust control measures to maintain dust levels below OES* limit.

*OES level (Occupational Exposure Standard):

Dry bentonite is classed as a nuisance dust with an 8 hour TWA for total dust inhalation of 10mg/m³ and 5mg/m³ for respirable dust. Quartz present in small quantities in this product has a Maximum Exposure Limit (MEL) of 0.4mg/m³ respirable dust for an 8 hour TWA period. (Respirable dust is that portion with a particle size <7.1µ.)

9. Physical and Chemical Properties

State	Powder
Colour	White
Odour	Odourless
Oxidising	Non-oxidising (by EC criteria)
Solubility in water	9.5% @ 25° C

10. Stability and Reactivity

Stability	Avoid generation of dust.
Conditions to avoid	Moist air
Materials to avoid	Acids. DO NOT MIX WITH ANY OTHER CHEMICALS
Hazardous Decomposition products.	In combustion emits toxic fumes of carbon dioxide / carbon monoxide

PRODUCT NAME: Sodium Bicarbonate

Page 3 of 3

Safety Data Sheet No: 5010EC

11.Toxicological Information

Acute toxicity	SODIUM BICARBONATE LD50 4220 mg/kg
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12.Ecological Information

Ecotoxicity	SODIUM BICARBONATE FISH 96H LC50 8600 mg/l
Mobility	Soluble in water

13.Disposal Considerations

Dispose of through approved waste disposal operatives.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14.Transport information

ADR/RID IMDG/IMO IATA/ICAO

15.Regulatory Information

Hazard Symbols: No significant hazard.

Note: The regulatory information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Clear Solutions International Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and it is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

16.Other Information

The information herein has been compiled from sources believed to be reliable and is accurate to the best of our knowledge. However, CLEAR SOLUTIONS INTERNATIONAL LTD cannot give guarantees regarding information from other sources, and expressly does not make any warranties, nor assumes any liability, for its use.