

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

MICRO MATRIX® CEMENT RETARDER

Revision Date: 20-May-2015

Revision Number: 17

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name MICRO MATRIX® CEMENT RETARDER
Internal ID Code HM001062

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Cement Retarder

1.3. Details of the supplier of the safety data sheet

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

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 1224 795277 or +1 281 575 5000

Emergency telephone - §45 - (EC)1272/2008	
Europe	112
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO): + 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Skin Corrosion / irritation	Category 2 - H315
Serious Eye Damage / Eye Irritation	Category 2 - H319

2.2. Label Elements**Hazard Pictograms****Signal Word****Warning****Hazard Statements**

H315 - Causes skin irritation

H319 - Causes serious eye irritation

Precautionary Statements - EU (§28, 1272/2008)

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear protective gloves/eye protection/face protection

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P332 + P313 - If skin irritation occurs: Get medical advice/attention

P362 - Take off contaminated clothing and wash before reuse

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

Contains**Substances**

Amino tri(methylenephosphonic acid)

Phosphonic acid

CAS Number

6419-19-8

13598-36-2

2.3. Other Hazards

None known

SECTION 3: Composition/information on Ingredients**3.2. Mixtures****Mixture**

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Amino tri(methylenephosphonic acid)	229-146-5	6419-19-8	10 - 30%	Eye Irrit. 2 (H319)	No data available
Phosphonic acid	237-066-7	13598-36-2	1 - 5%	Acute Tox. 4 (H302) Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Met. Corr. 1 (H290)	No data available

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures**4.1. Description of first aid measures****Inhalation**

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

4.2. Most Important symptoms and effects, both acute and delayed

Causes eye irritation Causes skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed**Notes to Physician** Treat symptomatically**SECTION 5: Firefighting Measures****5.1. Extinguishing media****Suitable Extinguishing Media**

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

5.2. Special hazards arising from the substance or mixture**Special Exposure Hazards**

Decomposition in fire may produce harmful gases. Do not allow runoff to enter waterways.

5.3. Advice for firefighters**Special Protective Equipment for Fire-Fighters**

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Use appropriate protective equipment.

See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage**7.1. Precautions for Safe Handling**

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from alkalis. Store in a cool well ventilated area. Keep container closed when not in use. Store locked up. Product has a shelf life of 60 months.

7.3. Specific End Use(s)**Exposure Scenario**

No information available

Other Guidelines

No information available

SECTION 8: Exposure Controls/Personal Protection**8.1. Control parameters****Exposure Limits**

Substances	CAS Number	EU	UK	Netherlands	France
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable	Not applicable	Not applicable	Not applicable
Phosphonic acid	13598-36-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable	Not applicable	Not applicable	Not applicable
Phosphonic acid	13598-36-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable	Not applicable	Not applicable	Not applicable
Phosphonic acid	13598-36-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable	Not applicable	Not applicable	Not applicable
Phosphonic acid	13598-36-2	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable	Not applicable	Not applicable	Not applicable
Phosphonic acid	13598-36-2	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) **Worker**

No information available.

General Population

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls

Engineering Controls

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection

If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.

Hand Protection

Organic vapor/acid gas respirator.
Chemical-resistant protective gloves (EN 374) Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374): Nitrile gloves. (>= 0.35 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection

Rubber apron.

Eye Protection

Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions

None known.

Environmental Exposure Controls No information available

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Odor: Mild aromatic
Color: Clear light yellow
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	2
Freezing Point/Range	-9 °C
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	> 100 °C / > 212 °F PMCC
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.15
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

SECTION 10: Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

None anticipated

10.5. Incompatible Materials

Strong alkalis.

10.6. Hazardous Decomposition Products

Oxides of nitrogen. Phosphines. Chlorine. Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity

Inhalation	May cause respiratory irritation.
Eye Contact	Causes moderate eye irritation.
Skin Contact	Causes moderate skin irritation.
Ingestion	Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 0.1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Amino tri(methylenephosphonic acid)	6419-19-8	2700 mg/kg (Rat) 2910 mg/kg (Rat) 7300 mg/kg (Rat)	> 6310 mg/kg (Rabbit)	No data available
Phosphonic acid	13598-36-2	1500 mg/kg (Rat)	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Amino tri(methylenephosphonic acid)	6419-19-8	Not irritating to skin in rabbits.
Phosphonic acid	13598-36-2	Corrosive to skin (Rabbit)

Substances	CAS Number	Eye damage/irritation
Amino tri(methylenephosphonic acid)	6419-19-8	Eye, rabbit: Causes moderate eye irritation.
Phosphonic acid	13598-36-2	Corrosive to eyes

Substances	CAS Number	Skin Sensitization
Amino tri(methylenephosphonic acid)	6419-19-8	Did not cause sensitization on laboratory animals (guinea pig)
Phosphonic acid	13598-36-2	Not applicable due to corrosivity of the substance.

Substances	CAS Number	Respiratory Sensitization
Amino tri(methylenephosphonic acid)	6419-19-8	No information available
Phosphonic acid	13598-36-2	No information available

Substances	CAS Number	Mutagenic Effects
Amino tri(methylenephosphonic acid)	6419-19-8	In vivo tests did not show mutagenic effects. (similar substances) In vitro tests did not show mutagenic effects
Phosphonic acid	13598-36-2	In vitro tests did not show mutagenic effects

Substances	CAS Number	Carcinogenic Effects
Amino tri(methylenephosphonic acid)	6419-19-8	Did not show carcinogenic effects in animal experiments
Phosphonic acid	13598-36-2	No information available.

Substances	CAS Number	Reproductive toxicity
Amino tri(methylenephosphonic acid)	6419-19-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Phosphonic acid	13598-36-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Amino tri(methylenephosphonic acid)	6419-19-8	No significant toxicity observed in animal studies at concentration requiring classification.
Phosphonic acid	13598-36-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Amino tri(methylenephosphonic acid)	6419-19-8	No significant toxicity observed in animal studies at concentration requiring classification.
Phosphonic acid	13598-36-2	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Amino tri(methylenephosphonic acid)	6419-19-8	Not applicable
Phosphonic acid	13598-36-2	Not applicable

SECTION 12: Ecological Information

12.1. Toxicity Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Amino tri(methylenephosphonic acid)	6419-19-8	EC50(72h): 80 mg/L (growth rate) (Skeletonea costatum) EC50 (96h) 20 mg/L (Selenastrum)	LC50 (96h) 160 mg/L (Oncorhynchus mykiss) LC50 (96h) > 330 mg/L (Lepomis macrochirus) NOEC (14d) 47 mg/L (Oncorhynchus mykiss) NOEC (60d) 23 mg/L (Oncorhynchus mykiss)	EC0 > 250 mg/L (Pseudomonas putida) EC0 (5d) >100 mg/L (activated sludge)	EC50 (48h): 297 mg/L (Daphnia magna) LC50 (48h): 94 mg/L (Acartia tonsa) NOEC (28d): >= 25 mg/L (Daphnia magna) LC50 (48h) 94 mg/L (Acartia tonsa)
Phosphonic acid	13598-36-2	EC50(72h): 153 mg/L (Pseudokirchnerella subcapitata)	LC50(96h): > 100 mg/L (Cyprinus carpio)	No information available	EC50(48h): > 1000 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Amino tri(methylenephosphonic acid)	6419-19-8	Product is not biodegradable (23% @ 28d)
Phosphonic acid	13598-36-2	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Amino tri(methylenephosphonic acid)	6419-19-8	-3.53
Phosphonic acid	13598-36-2	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Amino tri(methylenephosphonic acid)	6419-19-8	Soluble in water KOC = 11740
Phosphonic acid	13598-36-2	No information available

12.5. Results of PBT and vPvB assessment

No information available.

Substances	PBT and vPvB assessment
Amino tri(methylenephosphonic acid)	Not PBT/vPvB

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Disposal Method

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Contaminated Packaging	Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.
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SECTION 14: Transport Information

IMDG/IMO

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

RID

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

ADR

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

14.1. UN Number:	Not restricted
14.2. UN Proper Shipping Name:	Not restricted
14.3. Transport Hazard Class(es):	Not applicable
14.4. Packing Group:	Not applicable
14.5. Environmental Hazards:	Not applicable
14.6. Special Precautions for User:	None

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

EINECS Inventory	This product, and all its components, complies with EINECS
US TSCA Inventory	All components listed on inventory or are exempt.
Canadian DSL Inventory	All components listed on inventory or are exempt.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering WGK 1: Low hazard to waters.
Classes (WGK)

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3

H290 - May be corrosive to metals
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Key or legend to abbreviations and acronyms

bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL – Short Term Exposure Limit
SU – Sector of Use category

Key literature references and sources for data

www.ChemADVISOR.com/
NZ CCID

Revision Date: 20-May-2015

Revision Note

SDS sections updated: 2

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

Disclaimer Statement

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End of Safety Data Sheet