HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

DCA-19006

Revision Date: 08-Sep-2015 **Revision Number:** 5

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

1.1. Product Identifier

Product Name DCA-19006
Internal ID Code HM007871

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

Recommended Use Crosslinker
Sector of use SU2 - Mining, (including offshore industries)
Product category PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

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

www.halliburton.com

For further information, please contact
E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

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

Acute Oral Toxicity	Category 4 - H302
Serious Eye Damage / Eye Irritation	Category 2 - H319

Acute Aquatic Toxicity	Acute 1 - H400
Chronic Aquatic Toxicity	Chronic 1 - H410

2.2. Label Elements

Hazard Pictograms

Signal Word **Warning**

Hazard Statements
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P273 - Avoid release to the environment
P280 - Wear eye protection/face protection
P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
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	**CAS Number**
Polyethyleneimine	9002-98-6

2.3. Other Hazards
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients

3.2. Mixtures Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Polyethyleneimine	Not applicable	9002-98-6	30 - 60%	Acute Tox. 4 (H302) Eye Irrit. 2A (H319) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	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, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water.

Ingestion Under normal conditions, first aid procedures are not required.

4.2. Most Important symptoms and effects, both acute and delayed
Harmful if swallowed. Causes eye irritation. Causes eye 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.

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. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.
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. Avoid breathing mist. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.
Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities
Store in a dry location. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 24 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
Polyethyleneimine	9002-98-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Polyethyleneimine	9002-98-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway

Polyethyleneimine	9002-98-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	**CAS Number**	**Italy**	**Poland**	**Hungary**	**Czech Republic**
Polyethyleneimine	9002-98-6	Not applicable	Not applicable	Not applicable	Not applicable

Substances	**CAS Number**	**Denmark**	**Romania**	**Croatia**	**Cyprus**
Polyethyleneimine	9002-98-6	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) No information available.
Worker

General Population

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls
Engineering Controls Use in a well ventilated area.

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. Dust/mist respirator. (N95, P2/P3)
Hand Protection Impervious rubber gloves.
Skin Protection Normal work coveralls.
Eye Protection Wear safety glasses or goggles to protect against exposure.
Other Precautions None known.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
Physical State: Liquid **Color:** Yellow
Odor: Mild amine **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	12
Freezing Point/Range	-15 °C
Melting Point/Range	No data available
Boiling Point/Range	100 °C / 212 °F
Flash Point	> 100 °C /
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	1.05
Water Solubility	Miscible with 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 oxidizers.
10.6. Hazardous Decomposition Products
Oxides of nitrogen. 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 eye irritation.
Skin Contact	May cause skin irritation.
Ingestion	Harmful if swallowed. 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
Polyethyleneimine	9002-98-6	1,350 - 2,300 mg/kg (Rat)	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Polyethyleneimine	9002-98-6	Non-irritating to the skin (Rabbit)

Substances	CAS Number	Eye damage/irritation
Polyethyleneimine	9002-98-6	Causes moderate eye irritation. (Rabbit)

Substances	CAS Number	Skin Sensitization
Polyethyleneimine	9002-98-6	No information available

Substances	CAS Number	Respiratory Sensitization
Polyethyleneimine	9002-98-6	No information available

Substances	CAS Number	Mutagenic Effects
Polyethyleneimine	9002-98-6	In vitro tests did not show mutagenic effects

Substances	CAS Number	Carcinogenic Effects
Polyethyleneimine	9002-98-6	No information available.

Substances	CAS Number	Reproductive toxicity
Polyethyleneimine	9002-98-6	No information available

Substances	CAS Number	STOT - single exposure
Polyethyleneimine	9002-98-6	No information available

Substances	CAS Number	STOT - repeated exposure

Polyethyleneimine	9002-98-6	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Polyethyleneimine	9002-98-6	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
Polyethyleneimine	9002-98-6	EC50 (72h) 2.1 mg/L (Skeletonema costatum)	LC50 (96h) < 1 mg/L (Oryzias latipes) LC50 (96h) > 1 mg/L (Scophthalmus maximus) LC50 (48h) 0.38 mg/L (Oncorhynchus mykiss)	No information available	EC50 (48h) < 100 mg/L (Daphnia magna) LC50 (10d) 7581.91 mg/kg (Corophium volutator)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Polyethyleneimine	9002-98-6	(0.1% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Polyethyleneimine	9002-98-6	2.25

12.4. Mobility in soil

Substances	CAS Number	Mobility
Polyethyleneimine	9002-98-6	No information available

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Substances	PBT and vPvB assessment
Polyethyleneimine	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.

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.

SECTION 14: Transport Information

IMDG/IMO

UN Number: UN3082

UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)

Transport Hazard Class(es): 9

Packing Group: III
Environmental Hazards: Marine Pollutant

RID
UN Number: UN3082
UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: Marine Pollutant

ADR
UN Number: UN3082
UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: Marine Pollutant

IATA/ICAO
UN Number: UN3082
UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: Marine Pollutant

14.1. UN Number: UN3082

14.2. UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)

14.3. Transport Hazard Class(es): 9

14.4. Packing Group: III

14.5. Environmental Hazards: Marine Pollutant

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 does not comply 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/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 2: Hazard to waters.

15.2. Chemical Safety Assessment
No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

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: 08-Sep-2015
Revision Note
SDS sections updated: 1

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

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 Safety Data Sheet