HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

BARADRIL-N™ Fluid System (Freshwater and Brine)

Revision Date: 27-Oct-2015 **Revision Number:** 17

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

1.1. Product Identifier

Product Name BARADRIL-N™ Fluid System (Freshwater and Brine)
Internal ID Code HM003796

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

Recommended Use Drilling Fluid

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
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

Serious Eye Damage / Eye Irritation	Category 1 - H318

2.2. Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements
H318 - Causes serious eye damage

Precautionary Statements - EU (§28, 1272/2008)
P280 - Wear eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

Contains

Substances	**CAS Number**
Calcium bromide	7789-41-5
Calcium carbonate	471-34-1
Sodium bromide	7647-15-6
Sodium chloride	7647-14-5
Potassium chloride	7447-40-7

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.
Calcium bromide	232-164-6	7789-41-5	30 - 60%	Eye Corr. 1 (H318)	01-2119490040-51
Calcium carbonate	207-439-9	471-34-1	30 - 60%	Not applicable	No data available
Sodium bromide	231-599-9	7647-15-6	10 - 30%	Not applicable	No data available
Sodium chloride	231-598-3	7647-14-5	10 - 30%	Not applicable	No data available
Potassium chloride	231-211-8	7447-40-7	10 - 30%	Not applicable	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 Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin Wash with soap and water. Get medical attention if irritation persists. 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 serious eye damage.

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. Product is not expected to burn unless all the water is boiled away.

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. Ensure adequate ventilation. Avoid breathing vapors.

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

Use appropriate protective equipment. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. 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

Keep container closed when not in use.

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
Calcium bromide	7789-41-5	Not applicable	10 mg/m³	Not applicable	Not applicable
Calcium carbonate	471-34-1	Not applicable	10 mg/m³	Not applicable	10 mg/m³
Sodium bromide	7647-15-6	Not applicable	10 mg/m³	Not applicable	Not applicable
Sodium chloride	7647-14-5	Not applicable	10 mg/m³	Not applicable	Not applicable
Potassium chloride	7447-40-7	Not applicable	10 mg/m³	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Calcium bromide	7789-41-5	Not applicable	Not applicable	Not applicable	Not applicable
Calcium carbonate	471-34-1	Not applicable	Not applicable	TWA: 10 mg/m³	Not applicable
Sodium bromide	7647-15-6	Not applicable	Not applicable	Not applicable	Not applicable
Sodium chloride	7647-14-5	Not applicable	Not applicable	Not applicable	Not applicable
Potassium chloride	7447-40-7	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Calcium bromide	7789-41-5	Not applicable	Not applicable	Not applicable	Not applicable
Calcium carbonate	471-34-1	Not applicable	Not applicable	TWA: 3 mg/m³	Not applicable
Sodium bromide	7647-15-6	Not applicable	Not applicable	Not applicable	Not applicable
Sodium chloride	7647-14-5	Not applicable	Not applicable	Not applicable	Not applicable
Potassium chloride	7447-40-7	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Calcium bromide	7789-41-5	Not applicable	Not applicable	Not applicable	Not applicable
Calcium carbonate	471-34-1	Not applicable	TWA: 10 mg/m³	TWA: 10 mg/m³	Not applicable
Sodium bromide	7647-15-6	Not applicable	Not applicable	Not applicable	Not applicable
Sodium chloride	7647-14-5	Not applicable	Not applicable	Not applicable	Not applicable
Potassium chloride	7447-40-7	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Calcium bromide	7789-41-5	Not applicable	Not applicable	Not applicable	Not applicable
Calcium carbonate	471-34-1	Not applicable	Not applicable	Not applicable	Not applicable
Sodium bromide	7647-15-6	Not applicable	Not applicable	Not applicable	Not applicable
Sodium chloride	7647-14-5	Not applicable	Not applicable	Not applicable	Not applicable
Potassium chloride	7447-40-7	Not applicable	Not applicable	Not applicable	Not applicable

Derived No Effect Level (DNEL) No information available.

Worker

Substances	Long-term exposure - systemic effects, Inhalation	Acute / short term exposure - systemic effects, Inhalation	Long-term exposure - local effects, Inhalation	Acute / short term exposure - local effects, Inhalation	Long-term exposure - systemic effects, Dermal	Acute / short term exposure - systemic effects, Dermal	Long-term exposure - local effects, Dermal	Acute / short term exposure - local effects, Dermal	Hazards for the eyes - local effects
Calcium bromide	1.4 mg/m³	Not available	Not available	500 mg/m³	0.2 mg/kg bw/d	Not available	Not available	Not available	Not available

General Population

Substances	Long-term exposure - systemic effects, Inhalation	Acute / short term exposure - systemic effects, Inhalation	Long-term exposure - local effects, Inhalation	Acute / short term exposure - local effects, Inhalation	Long-term exposure - systemic effects, Dermal	Acute / short term exposure - systemic effects, Dermal	Long-term exposure - local effects, Dermal	Acute / short term exposure - local effects, Dermal	Long-term exposure - systemic effects, Oral	Acute / short term exposure - local effects, Oral	Hazards for the eyes - local effects
Calcium bromide	0.25 mg/m³	Not available	Not available	Not available	0.073 mg/kg bw/d	Not available	Not available	Not available	0.073 mg/kg bw/d	Not available	Not available

Predicted No Effect Concentration (PNEC) No information available.

Substances	Freshwater	Marine water	Intermittent release	Sewage treatment plant	Sediment (freshwater)	Sediment (marine water)	Air	Soil	Secondary poisoning
Calcium bromide	0.117 mg/L	0.058 mg/L	0.208 mg/L	77.7 mg/L	0.433 mg/kg sediment dw	0.215 mg/kg sediment dw	Not available	0.2 mg/kg soil dw	No potential for bioaccumulation

8.2. Exposure controls

Engineering Controls None known.

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 Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)

Hand Protection Impervious rubber gloves.

Skin Protection Rubber apron.

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

Other Precautions Eyewash fountains and safety showers must be easily accessible.

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: Off white
Odor: Odorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	8-10
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	100 °C / 212 °F
Flash Point	No data available
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	1.44 - 1.74
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

None known.

10.6. Hazardous Decomposition Products

Bromine. Chlorine.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity

Inhalation May cause respiratory irritation.
Eye Contact Causes serious eye damage.
Skin Contact May cause 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
Calcium bromide	7789-41-5	2447 mg/kg (Rat) 2210 mg/kg (Rat)	>2000 mg/kg (Rabbit)	> 203 mg/L (Rat, aerosol, 1h) > 204 mg/L (Rat, dust, 1h)
Calcium carbonate	471-34-1	6450 mg/kg (Rat) > 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	> 3 mg/L (Rat) 4h

Sodium bromide	7647-15-6	3400 mg/kg (Rat)	2000 mg/kg (Rabbit)	No data available
Sodium chloride	7647-14-5	3000 mg/kg (Rat) 3550 mg/kg (Rat)	>10000 mg/kg (Rabbit)	42 mg/L (Rat) 1h
Potassium chloride	7447-40-7	2600 mg/kg (Rat) 2430 mg/kg (Rat) 3020 mg/kg (Rat) 383 mg/kg (Mouse) 1500 mg/kg (Mouse)	> 2000 mg/L (Rabbit) (similar substance)	No data available

Substances	**CAS Number**	**Skin corrosion/irritation**
Calcium bromide	7789-41-5	Non-irritating to the skin (Rabbit)
Calcium carbonate	471-34-1	Non-irritating to the skin (Rabbit)
Sodium chloride	7647-14-5	Non-irritating to the skin (Rabbit)
Potassium chloride	7447-40-7	Non-irritating to the skin (Rabbit) (similar substances)

Substances	**CAS Number**	**Eye damage/irritation**
Calcium bromide	7789-41-5	Causes severe eye irritation. (Rabbit)
Calcium carbonate	471-34-1	Non-irritating to the eye (Rabbit)
Sodium chloride	7647-14-5	May cause mild eye irritation. (Rabbit)
Potassium chloride	7447-40-7	May cause mild eye irritation. (Rabbit) (similar substances)

Substances	**CAS Number**	**Skin Sensitization**
Calcium bromide	7789-41-5	Did not cause sensitization on laboratory animals (guinea pig)
Calcium carbonate	471-34-1	Did not cause sensitization on laboratory animals (mouse)
Sodium chloride	7647-14-5	No information available
Potassium chloride	7447-40-7	Did not cause sensitization on laboratory animals (mouse) (similar substances)

Substances	**CAS Number**	**Respiratory Sensitization**
Calcium bromide	7789-41-5	No information available
Calcium carbonate	471-34-1	No information available
Sodium chloride	7647-14-5	No information available
Potassium chloride	7447-40-7	No information available

Substances	**CAS Number**	**Mutagenic Effects**
Calcium bromide	7789-41-5	In vitro tests did not show mutagenic effects
Calcium carbonate	471-34-1	In vitro tests did not show mutagenic effects
Sodium chloride	7647-14-5	No information available
Potassium chloride	7447-40-7	In vitro tests did not show mutagenic effects

Substances	**CAS Number**	**Carcinogenic Effects**
Calcium bromide	7789-41-5	Did not show carcinogenic effects in animal experiments (similar substances)
Calcium carbonate	471-34-1	No information available.
Sodium chloride	7647-14-5	Did not show carcinogenic effects in animal experiments
Potassium chloride	7447-40-7	Did not show carcinogenic effects in animal experiments (similar substances)

Substances	**CAS Number**	**Reproductive toxicity**
Calcium bromide	7789-41-5	Animal testing did not show any effects on fertility. Adverse developmental effects were only observed at maternally toxic doses. (similar substances)
Calcium carbonate	471-34-1	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Sodium chloride	7647-14-5	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Potassium chloride	7447-40-7	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	**CAS Number**	**STOT - single exposure**
Calcium bromide	7789-41-5	No significant toxicity observed in animal studies at concentration requiring classification.
Calcium carbonate	471-34-1	No significant toxicity observed in animal studies at concentration requiring classification.
Sodium chloride	7647-14-5	No information available
Potassium chloride	7447-40-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	**CAS Number**	**STOT - repeated exposure**
Calcium bromide	7789-41-5	No information available

Calcium carbonate	471-34-1	No significant toxicity observed in animal studies at concentration requiring classification.
Sodium chloride	7647-14-5	No significant toxicity observed in animal studies at concentration requiring classification.
Potassium chloride	7447-40-7	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)

Substances	CAS Number	Aspiration hazard
Calcium bromide	7789-41-5	Not applicable
Calcium carbonate	471-34-1	Not applicable
Sodium chloride	7647-14-5	Not applicable
Potassium chloride	7447-40-7	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
Calcium bromide	7789-41-5	EC50 (48h) > 440 mg/L (Growth rate) (Skeletonema costatum) (similar substance)	LC50 (96h) > 440 mg/L (Scophthalmus maximus) (similar substance) LC50 (96h) > 1000 mg/L (Lepomis macrochirus) (similar substance) NOEC (124d) 10 mg/L (Poecelia reticulata) (similar substance)	EC50 (3h) > 1000 mg/L (activated sludge, domestic) (similar substance)	EC50 (48h) > 100 mg/L (Daphnia magna) NOEC (21d) 7.5 mg/L (Reproduction) (Daphnia magna) (similar substance)
Calcium carbonate	471-34-1	EC50(72h): > 14 mg/L (growth rate) (Desmodesmus subspicatus)	LC50(96h): > 100 mg/L (saturated solution) (Oncorhynchus mykiss)	EC50(3h): > 1000 mg/L (Activated sludge)	EC50(48h): > 100 mg/L (saturated solution) (Daphnia magna)
Sodium bromide	7647-15-6	EC50: 5800 - 24000 mg/L (Scenedesmus pannonicus)	LC50: > 1000 mg/L (Lepomis macrochirus)	No information available	EC50: 5800 - 48000 mg/L (Daphnia magna)
Sodium chloride	7647-14-5	EC50 (120h) 2430 mg/L (Nitzschia sp.)	TLM96 > 1000 mg/L (Oncorhynchus mykiss) LC50 (96h) 5840 mg/L (Lepomis macrochirus) NOEC (33d) 252 mg/L (Pimephales promelas)	NOEC 5000 – 8000 mg/L (activated sludge) NOEC 292-584 mg/L (Escherichia coli)	TLM96 > 1,000,000 ppm (Mysidopsis bahia) LC50 (48h) 874-4136 mg/L (Daphnia magna) NOEC (21d) 314 mg/L (Daphnia pulex)
Potassium chloride	7447-40-7	EC50(72h): 2500 mg/l (Desmodesmus subspicatus) EC50(72h): > 100 mg/L (growth rate) (Desmodesmus subspicatus)	LC50: 1060 mg/L (Lepomis macrochirus); LC50: 750-1020 mg/L (Pimephales promelas)	EC50(3h): >1000 mg/L (activated sludge)	TLM96: 100-330 ppm (Crangon crangon) EC50(24h): >= 580 <=990 mg/L (Daphnia magna) EC50(48h): >=440 <= 880 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Calcium bromide	7789-41-5	The methods for determining biodegradability are not applicable to inorganic substances.
Calcium carbonate	471-34-1	The methods for determining biodegradability are not applicable to inorganic substances.
Sodium bromide	7647-15-6	The methods for determining biodegradability are not applicable to inorganic substances.
Sodium chloride	7647-14-5	No information available
Potassium chloride	7447-40-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Calcium bromide	7789-41-5	No information available

Calcium carbonate	471-34-1	No information available
Sodium bromide	7647-15-6	No information available
Sodium chloride	7647-14-5	No information available
Potassium chloride	7447-40-7	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Calcium bromide	7789-41-5	No information available
Calcium carbonate	471-34-1	No information available
Sodium bromide	7647-15-6	No information available
Sodium chloride	7647-14-5	No information available
Potassium chloride	7447-40-7	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
Calcium bromide	Not applicable
Calcium carbonate	Not applicable
Sodium bromide	Not applicable
Sodium chloride	Not applicable
Potassium chloride	Not applicable

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.

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/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 1: Low 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
H318 - Causes serious eye damage

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/

Revision Date: 27-Oct-2015
Revision Note
SDS sections updated: 1

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

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End of Safety Data Sheet