

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

INITIATOR, HMX DETONATING CORD

Revision Date: 11-Dec-2015

Revision Number: 10

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

1.1. Product Identifier

Product Name INITIATOR, HMX DETONATING CORD
Internal ID Code HM000929

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

Recommended Use Explosive Charge

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
Acute Toxicity - Dermal	Category 4 - H312
Specific Target Organ Toxicity - (Single Exposure)	Category 2 - H371
Explosives.	Division 1.4 - H204

2.2. Label Elements

Hazard Pictograms**Signal Word****Danger****Hazard Statements**

H204 - Fire or projection hazard

H302 - Harmful if swallowed

H312 - Harmful in contact with skin

H371 - May cause damage to organs

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

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P240 - Ground/Bond container and receiving equipment

P250 - Do not subject to grinding/shock/friction

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

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

Contains**Substances**

Hexanitrostilbene (HNS)

Cyclotrimethylenetrinitramine (RDX)

2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)

Cyclotetramethylene tetranitramine (HMX)

CAS Number

20062-22-0

121-82-4

38082-89-2

2691-41-0

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.
Hexanitrostilbene (HNS)	243-494-5	20062-22-0	5 - 10%	Expl. 1.1 (H201)	No data available
Cyclotrimethylenetrinitramine (RDX)	204-500-1	121-82-4	5 - 10%	Acute Tox. 3 (H301) STOT SE 1 (H370) STOT RE 2 (H373) Expl. 1.1 (H201)	No data available
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	Not applicable	38082-89-2	5 - 10%	Expl. 1.1 (H201)	No data available
Cyclotetramethylene tetranitramine (HMX)	220-260-0	2691-41-0	5 - 10%	Acute Tox. 3 (H311) STOT SE 1 (H370) Expl. 1.1 (H201)	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, move victim to fresh air and seek medical attention.

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	Wash with soap and water. Get medical attention if irritation persists.
Ingestion	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

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

Harmful if swallowed. Harmful in contact with skin. May cause damage to internal organs.

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**

Do NOT fight fire. Isolate area and evacuate personnel to a safe area. Guard against intruders. Allow fire to burn itself out.

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**

May detonate with impact or on heating. May explode and throw fragments 1 mile or more in fire. Evacuate all persons, including emergency responders.

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

Not applicable.

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

Use appropriate protective equipment. Use only competent persons for cleanup. Avoid contact with skin, eyes and clothing.

Evacuate all persons from the area.

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 area and remove sources of friction, impact, heat, low level electrical current, and RF energy. Remove ignition sources and work with non-sparking tools.

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**

Do NOT consume food, drink, or tobacco in contaminated areas. Avoid contact with eyes, skin, or clothing. 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 only in ATF approved magazines. Keep away from friction, impact, and heat.

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
Hexanitrostilbene (HNS)	20062-22-0	Not applicable	Not applicable	Not applicable	Not applicable

Cyclotrimethylenetrinitramine (RDX)	121-82-4	Not applicable	1.5 mg/m ³	0,1 mg/m ³	1.5 mg/m ³
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Hexanitrostilbene (HNS)	20062-22-0	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotrimethylenetrinitramine (RDX)	121-82-4	1,5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 0.5 mg/m ³	TWA: 1.5 mg/m ³ STEL: 4.5 mg/m ³
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Hexanitrostilbene (HNS)	20062-22-0	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotrimethylenetrinitramine (RDX)	121-82-4	TWA: 1.5 mg/m ³ STEL" 3 mg/m ³	0.5 ppm TWA 1.5 mg/m ³ STEL (calculated)	TWA: 1.5 mg/m ³	TWA: 1.5 mg/m ³ STEL: 3 mg/m ³
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Hexanitrostilbene (HNS)	20062-22-0	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Not applicable	TWA: 1 mg/m ³ STEL: 3 mg/m ³	Not applicable	Not applicable
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Hexanitrostilbene (HNS)	20062-22-0	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotrimethylenetrinitramine (RDX)	121-82-4	TWA: 1.5 mg/m ³	TWA: 2 mg/m ³ STEL: 6 mg/m ³	Not applicable	Not applicable
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	Not applicable	Not applicable	Not applicable	Not applicable
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	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.

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

Dust/mist respirator. (N95, P2/P3)

Hand Protection

Cloth gloves.

Skin Protection

Cotton coveralls, undergarments, and socks. Conductive soled shoes.

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: Solid **Color:** Metallic
Odor: Odorless **Odor Threshold:** No information available

<u>Property</u>	<u>Values</u>
<u>Remarks/ - Method</u>	
pH:	No data available
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
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	No data available
Water Solubility	Insoluble 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

May detonate with friction, impact, heat, and low level electrical current.

10.5. Incompatible Materials

Strong acids. Strong alkalis.

10.6. Hazardous Decomposition Products

Shrapnel. Oxides of nitrogen. Metal oxides. Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological Information**11.1. Information on Toxicological Effects****Acute Toxicity****Inhalation**

May cause effects to the blood and blood system. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

May cause damage to the nervous, urinary, and reproductive systems. Nitrogen oxides generated during use are irritating to the respiratory system.

Eye Contact

May cause eye irritation.

Skin Contact

Harmful in contact with skin May be absorbed through the skin and contribute to the symptoms listed under ingestion. Nitrogen oxides generated during use are skin irritants.

Ingestion

Harmful if swallowed. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity Repeated excessive ingestion may cause central nervous system effects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexanitrostilbene (HNS)	20062-22-0	No data available	No data available	No data available
Cyclotrimethylenetrinitramin	121-82-4	100 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	No data available

e (RDX)		187 mg/kg (Rat)		
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	> 5000 mg/kg (Rat)	No data available	No data available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	6490 mg/kg (Rat) 2300 mg/kg (Rat)	5 g/kg (Rat) 630 mg/kg (Rabbit) 982 mg/kg (Rabbit)	No data available

Substances	CAS Number	Skin corrosion/irritation
Hexanitrostilbene (HNS)	20062-22-0	No information available.
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Not irritating to skin in rabbits.
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available.
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Not irritating to skin in rabbits.

Substances	CAS Number	Eye damage/irritation
Hexanitrostilbene (HNS)	20062-22-0	No information available.
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Non-irritating to rabbit's eye
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available.
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Non-irritating to rabbit's eye

Substances	CAS Number	Skin Sensitization
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Did not cause sensitization on laboratory animals (guinea pig)
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	No information available
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	No data of sufficient quality are available.

Substances	CAS Number	Mutagenic Effects
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Hexanitrostilbene (HNS)	20062-22-0	No information available.
Cyclotrimethylenetrinitramine (RDX)	121-82-4	No data of sufficient quality are available.
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available.
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	No information available.

Substances	CAS Number	Reproductive toxicity
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available

nitro-pyridine (PYX) Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
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Substances	CAS Number	STOT - single exposure
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	May cause disorder and damage to the Central Nervous System (CNS)
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	May cause disorder and damage to the Central Nervous System (CNS)

Substances	CAS Number	STOT - repeated exposure
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Causes damage to organs through prolonged or repeated exposure if swallowed: Central Nervous System (CNS)
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Hexanitrostilbene (HNS)	20062-22-0	Not applicable
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Not applicable
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available Not applicable
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	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
Hexanitrostilbene (HNS)	20062-22-0	No information available	No information available	No information available	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	EC50 (96h) 36.7 mg/L (Pseudokircheriella subcapitata)	LC50 (96h) 11.14-14.97 mg/L (Pimephales promelas) NOEC (28d) 1.4 mg/L (Pimephales promelas)	NOEC (12wk) 6143 mg/kg (Soil dwelling bacteria)	EC50 (56d) 3.7 mg/kg (Eisenia fetida) EC50 (48h) >17 mg/L (Ceriodaphnia dubia) LOEC (7d) 6.01 mg/L (Ceriodaphnia dubia)
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available	No information available	No information available	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	EC50 (96h) > 22 umol/L (Scendesmus capricornutum)	LC50 8.8-26 mg/L (Pimephales promelas) LC50 (96h) >15 mg/L (Pimephales promelas) LC50 (96h) > 32 mg/L (Lepomis macrochirus) NOEC (32d) > 3.3 mg/L (Pimephales promelas)	No information available	EC50 (48h) > 15 mg/L (Daphnia magna) NOEC (28d) > 3.9 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	Readily biodegradable (69% @ 10d)
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	Not readily biodegradable (2% @ 29d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	0.87
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	0.165

12.4. Mobility in soil

Substances	CAS Number	Mobility
Hexanitrostilbene (HNS)	20062-22-0	No information available
Cyclotrimethylenetrinitramine (RDX)	121-82-4	KOC = 42-167
2,6-Bis(picrylamino)-3,5-dinitro-pyridine (PYX)	38082-89-2	No information available
Cyclotetramethylene tetranitramine (HMX)	2691-41-0	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
Cyclotrimethylenetrinitramine (RDX)	Not PBT/vPvB
Cyclotetramethylene tetranitramine (HMX)	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

Do NOT reuse container. Store only in ATF approved magazines.

SECTION 14: Transport Information

IMDG/IMO

UN Number: UN0267
 UN Proper Shipping Name: Detonators, Non-Electric
 Transport Hazard Class(es): 1.4B
 Packing Group: II
 EX Number: EX-1994120123
 Environmental Hazards: Not applicable

RID

UN Number: UN0267
 UN Proper Shipping Name: Detonators, Non-Electric
 Transport Hazard Class(es): 1.4B
 Packing Group: II
 EX Number: EX-1994120123
 Environmental Hazards: Not applicable

ADR

UN Number: UN0267
 UN Proper Shipping Name: Detonators, Non-Electric
 Transport Hazard Class(es): 1.4B
 Packing Group: II
 EX Number: EX-1994120123
 Environmental Hazards: Not applicable

IATA/ICAO

UN Number: UN0267
 UN Proper Shipping Name: Detonators, Non-Electric
 Transport Hazard Class(es): 1.4B
 Packing Group: II
 EX Number: EX-1994120123
 Environmental Hazards: Not applicable

- 14.1. UN Number:** UN0267
- 14.2. UN Proper Shipping Name:** Detonators, Non-Electric
- 14.3. Transport Hazard Class(es):** 1.4B
- 14.4. Packing Group:** II
- 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	Product contains one or more components not listed on the inventory.

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 Classes (WGK) Not determined.

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information

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

H201 - Explosive; mass explosion hazard

H204 - Fire or projection hazard

H301 - Toxic if swallowed

H302 - Harmful if swallowed

H311 - Toxic in contact with skin

H312 - Harmful in contact with skin

H370 - Causes damage to organs

H371 - May cause damage to organs

H373 - May cause damage to organs through prolonged or repeated exposure

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: 11-Dec-2015

Revision Note

SDS sections updated: 2 , 4

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

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End of Safety Data Sheet