Alkaline Manganese Button Cell (Mercury Free)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Issue date: 7/8/2021 Revision date: 2/27/2023 Version: 2.0

SECTION 1: Identification

1.1. Identification

Product form	:	Article
Trade name	:	Alkaline Manganese Button Cell (Mercury Free)
Product code	:	20475, 20475-95, 20456, 20112, 20017, 20341

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Batteries and accumulators
Restrictions on use	:	No additional information available

1.3. Supplier

Supplier
ITW Global Tire Repair, Inc.
125 Venture Drive, Suite 210, San Luis Obispo, CA 93401, USA
Tel: (888) 457-5463 (Toll Free)

1.4. Emergency telephone number

Emergency number	:	Chemtel: +1(813)248-0585 (International)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification	:	This product is not classified as hazardous but contains hazardous components. Risk of exposure only occurs if the battery cell is mechanically, thermally, or electrically abused and the enclosure is compromised. If this occurs, exposure to electrolyte solutions contained in the battery cell may occur by inhalation, eye contact, skin contact, or ingestion. The batteries described in this Safety Data Sheet are sealed units which are not hazardous when used according to the Manufacturer's recommendations.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
Manganese dioxide	CAS-No.: 1313-13-9	≥ 18 – ≤ 37	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 STOT RE 2, H373
Potassium hydroxide	CAS-No.: 1310-58-3	≥ 3 – ≤ 6	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H314
Graphite	CAS-No.: 7782-42-5	≥ 1 – ≤ 6	Not classified
Nickel	CAS-No.: 7440-02-0	≥ 1 – ≤ 2	Carc. 2, H351 STOT RE 1, H372 Skin Sens. 1, H317

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : If medical advice is needed, have product container or label at hand.

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Take off contaminated clothing. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. Get medical attention if symptoms occur.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Contact ophthalmologist immediately.

First-aid measures after ingestion : Rinse mouth out with water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Risk of exposure only occurs if the battery cell is mechanically, thermally, or electrically abused and the enclosure is compromised. If this occurs, exposure to electrolyte solutions contained in the battery cell may occur by inhalation, eye contact, skin contact, or ingestion.

Symptoms/effects after inhalation : vapors or mists from a ruptured battery may cause respiratory irritation.

Symptoms/effects after skin contact : Skin contact with a ruptured battery can cause skin irritation. May cause an allergic skin reaction. Skin rash/inflammation. Redness. Swelling.

Symptoms/effects after eye contact : Eye contact with the contents of a ruptured battery can cause severe irritation to the eye. Can cause blindness. Redness. Blurred vision. Lacrimation. Itching.

Symptoms/effects after ingestion : Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea. Abdominal pain.

Chronic symptoms : May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Carbon dioxide. Foam. Dry powder. Water spray. Use extinguishing agent suitable for surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard	:	Burning produces stinking and toxic fumes. In case of fire and/or explosion do not breathe fumes.
Explosion hazard	:	Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Explosion risk in case of fire.
Reactivity in case of fire	:	Damaged or opened cells or batteries can result in rapid heating and the release of flammable vapors.
Hazardous decomposition products in case of fire	:	Toxic fumes may be released. Carbon dioxide. Carbon monoxide.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	:	Evacuate the danger area. Move containers from fire area if it can be done without personal risk. Exercise caution when fighting any chemical fire. Fight fire with normal precautions from a reasonable distance. Use water spray or fog for cooling exposed containers. Prevent fire-fighting water from entering environment.
Protection during firefighting	:	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	Avoid all contact with skin, eyes, or clothing. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment	:	Wear recommended personal protective equipment.
Emergency procedures	:	Ventilate spillage area. Avoid breathing vapors, fume. Do not get in eyes, on skin, or on clothing. Do not touch or walk on the spilled product. Evacuate unnecessary personnel. No action shall be taken without appropriate training or involving any personal risk.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	:	Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	:	Stop leak, if possible without risk.
Methods for cleaning up	:	Move containers from spill area. Mechanically recover the product. Clean up any spills as soon as possible, using an absorbent material to collect it. Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). Prevent entry to sewers and public waters.
Other information	:	Dispose of via an authorised person/ licensed waste disposal contractor or by other suitable waste treatment techniques.

6.4. Reference to other sections

For further information refer to section 13. For further information refer to section 8: "Exposure controls/personal protection".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Provide local exhaust or general room ventilation. Wear personal protective equipment. Avoid contact with skin and eyes. Handling this product may result in electrostatic accumulation. Use proper grounding procedures. Take precautionary measures against static discharge. Use explosion-proof equipment. Use only non-sparking tools. Do not short circuit, puncture, incinerate, crush, immerse in water, or expose to temperatures outside the temperature range stipulated by the manufacturer for the product. If this occurs, electrolyte leakage, or battery vent/explosion/fire may also occur depending on the circumstances.

Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Always wash hands after handling the product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool. Store in a dry place. Store in accordance with local, regional, national or international regulation. Keep away from food, drink and animal feedingstuffs. Proper grounding procedures to avoid static electricity should be followed. Protect from moisture. Protect from freezing.

Incompatible products : Strong oxidizing agents. Strong reducing agents. Strong acids. alcohols. Combustible materials.

Incompatible materials : Direct sunlight. Heat sources. Ignition sources. Keep away from any possible contact with water.

Heat and ignition sources : Do not expose the battery to high temperatures or fire.

Storage area : Store in dry, cool, well-ventilated area.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Alkaline Manganese Button Cell (Mercury Free)
No additional information available

Manganese dioxide (1313-13-9)
No additional information available

Potassium hydroxide (1310-58-3)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Potassium hydroxide
ACGIH OEL Ceiling	2 mg/m³
Remark (ACGIH)	TLV® Basis: URT, eye, & skin irr
Regulatory reference	ACGIH 2022

Graphite (7782-42-5)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Graphite (all forms excepte graphite fibers)
ACGIH OEL TWA	2 mg/m³ (R - Respirable particulate matter)
Remark (ACGIH)	TLV® Basis: Pneumoconiosis
Regulatory reference	ACGIH 2022

Graphite (7782-42-5)	
USA - OSHA - Occupational Exposure Limits	
Local name	Graphite (Natural)
OSHA PEL (TWA) [2]	15 mppcf
Remark (OSHA)	Table Z-3. CAS No. source: eCFR Table Z-1.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts

Nickel (7440-02-0)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Nickel, elemental
ACGIH OEL TWA	1.5 mg/m³ (I - Inhalable particulate matter)
Remark (ACGIH)	TLV® Basis: Dermatitis; pneumoconiosis. Notations: A5 (Not Suspected as a Human Carcinogen)
Regulatory reference	ACGIH 2022
USA - OSHA - Occupational Exposure Limits	
Local name	Nickel
OSHA PEL (TWA) [1]	1 mg/m³ metal and insoluble compounds (as Ni) 1 mg/m³ soluble compounds (as Ni)
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

Monitoring methods	
Monitoring methods	Refer to all applicable national, international and local regulations or provisions. Workplace atmospheres. Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy. Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. Workplace exposure - General requirements for the performance of procedures for the measurement of chemical agents.

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide local exhaust or general room ventilation. Handle in accordance with good industrial hygiene and safety procedures. Avoid all unnecessary exposure.

Environmental exposure controls : Avoid release to the environment. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
Wear recommended personal protective equipment. Personal protective equipment should be chosen according to the NIOSH standards and in discussion with the supplier of the protective equipment.

Hand protection:
Not required for normal conditions of use. In case of repeated or prolonged contact wear gloves

Eye protection:
No special eye protection equipment recommended under normal conditions of use

Skin and body protection:
No special clothing/skin protection equipment is recommended under normal conditions of use

Respiratory protection:
No respiratory protection needed under normal use conditions

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	batteries.
Color	:	Silver
Odor	:	odorless
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point	:	Not applicable
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability	:	No data available
Vapor pressure	:	No data available
Relative vapor density at 20°C	:	No data available
Relative density	:	No data available
Solubility	:	Insoluble.
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	No data available
Explosion limits	:	Not applicable
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

Additional information	:	1.5 V

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport. Damaged or opened cells or batteries can result in rapid heating and the release of flammable vapors.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Exothermic reaction on contact with : acids.

10.4. Conditions to avoid

Direct sunlight. High temperature. Heat and ignition sources. Moisture. Do not allow contact with water. Do not freeze.

10.5. Incompatible materials

Strong oxidizing agents. Strong reducing agents. Strong acids. alcohols. Combustible materials. Do not mix with other chemicals.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Manganese dioxide (1313-13-9)	
ATE US (oral)	500 mg/kg body weight
ATE US (gases)	4500 ppmV/4h
ATE US (vapors)	11 mg/l/4h
ATE US (dust, mist)	1.5 mg/l/4h

Potassium hydroxide (1310-58-3)	
LD50 oral rat	273 mg/kg
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Nickel (7440-02-0)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

Manganese dioxide (1313-13-9)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Nickel (7440-02-0)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified
Viscosity, kinematic : Not applicable
Symptoms/effects : Risk of exposure only occurs if the battery cell is mechanically, thermally, or electrically abused and the enclosure is compromised. If this occurs, exposure to electrolyte solutions contained in the battery cell may occur by inhalation, eye contact, skin contact, or ingestion.
Symptoms/effects after inhalation : vapors or mists from a ruptured battery may cause respiratory irritation.
Symptoms/effects after skin contact : Skin contact with a ruptured battery can cause skin irritation. May cause an allergic skin reaction. Skin rash/inflammation. Redness. Swelling.
Symptoms/effects after eye contact : Eye contact with the contents of a ruptured battery can cause severe irritation to the eye. Can cause blindness. Redness. Blurred vision. Lacrimation. Itching.
Symptoms/effects after ingestion : Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea. Abdominal pain.
Chronic symptoms : May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer.

Other information : No experimental study on the product is available. The information given is based on our knowledge of the components and the classification of the product is determined by calculation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Do not allow product to spread into the environment. May be harmful to aquatic organisms, to flora, to soil organisms.

12.2. Persistence and degradability

Alkaline Manganese Button Cell (Mercury Free)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

Alkaline Manganese Button Cell (Mercury Free)	
Bioaccumulative potential	No data available concerning bioaccumulation.

12.4. Mobility in soil

Alkaline Manganese Button Cell (Mercury Free)	
Ecology - soil	No additional information available.

12.5. Other adverse effects

Other adverse effects : No other effects known.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector’s sorting instructions.

Sewage disposal recommendations : Do not dispose of waste into sewer.

Product/Packaging disposal recommendations : Must not be disposed together with household garbage. Dispose in a safe manner in accordance with local/national regulations. To be disposed of as hazardous waste. Do not disassemble, short circuit, puncture, incinerate, crush, or puncture the battery. Do not mix new and used batteries.

Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No : UN3028

UN-No. (TDG) : UN3028

UN-No. (IMDG) : 3028

UN-No. (IATA) : 3028

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Batteries, dry, containing potassium hydroxide solid

Proper Shipping Name (TDG) : BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID

Proper Shipping Name (IMDG) : BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE, SOLID

Proper Shipping Name (IATA) : Batteries, dry, containing potassium hydroxide, solid

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 8

Hazard labels (DOT) : 8

TDG

Transport hazard class(es) (TDG) : 8

Hazard labels (TDG) : 8

IMDG

Transport hazard class(es) (IMDG) : 8

Hazard labels (IMDG) : 8

IATA

Transport hazard class(es) (IATA) : 8

Hazard labels (IATA) : 8

14.4. Packing group

Packing group (DOT) : Not applicable

Packing group (TDG) : Not applicable

Packing group (IMDG) : III

Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN3028

DOT Special Provisions (49 CFR 172.102) : 237 - “Batteries, dry, containing potassium hydroxide solid, electric storage ” must be prepared and packaged in accordance with the requirements of §173.159(a), (b), and (c). For transportation by aircraft, the provisions of §173.159(b)(2) are applicable.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154

DOT Packaging Non Bulk (49 CFR 173.xxx) : 213

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	25 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	230 kg
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	:	52 - Stow ‘‘separated from’’ acids

TDG

UN-No. (TDG)	:	UN3028
TDG Special Provisions	:	111 - This shipping name must not be used for the transport of non-activated batteries unless they contain dry potassium hydroxide and are intended to be activated prior to use by the addition of an appropriate amount of water to each cell.
Explosive Limit and Limited Quantity Index	:	2 kg
Excepted quantities (TDG)	:	E0
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	:	25 kg
Emergency Response Guide (ERG) Number	:	154

IMDG

Special provision (IMDG)	:	295, 304
Limited quantities (IMDG)	:	5 kg
Excepted quantities (IMDG)	:	E0
Packing instructions (IMDG)	:	P801
EmS-No. (Fire)	:	F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	:	S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES
Stowage category (IMDG)	:	A
Properties and observations (IMDG)	:	Series of metal plates immersed in dry potassium hydroxide in a closed receptacle. When electrically charged may cause fire through short-circuiting of terminals. Batteries need not be individually marked and labelled if the pallet bears the appropriate mark and label. Used batteries being transported for disposal or reclamation should be carefully checked prior to shipment to ensure the integrity of each battery and its suitability for transport. React violently with acids.

IATA

PCA Excepted quantities (IATA)	:	E0
PCA Limited quantities (IATA)	:	Forbidden
PCA limited quantity max net quantity (IATA)	:	Forbidden
PCA packing instructions (IATA)	:	871
PCA max net quantity (IATA)	:	25kg
CAO packing instructions (IATA)	:	871
CAO max net quantity (IATA)	:	230kg
Special provision (IATA)	:	A183, A802
ERG code (IATA)	:	8L

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. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory		
Manganese dioxide	CAS-No. 1313-13-9	≥ 18 – ≤ 37%
Potassium hydroxide	CAS-No. 1310-58-3	≥ 3 – ≤ 6%

Graphite	CAS-No. 7782-42-5	≥ 1 – ≤ 6%
Nickel	CAS-No. 7440-02-0	≥ 1 – ≤ 2%

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.		
Nickel	CAS-No. 7440-02-0	≥ 1 – ≤ 2%

Potassium hydroxide (1310-58-3)	
CERCLA RQ	1000 lb

Nickel (7440-02-0)	
CERCLA RQ	100 lb

15.2. International regulations

CANADA

Manganese dioxide (1313-13-9)
Listed on the Canadian DSL (Domestic Substances List)

Potassium hydroxide (1310-58-3)
Listed on the Canadian DSL (Domestic Substances List)

Graphite (7782-42-5)
Listed on the Canadian DSL (Domestic Substances List)

Nickel (7440-02-0)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Alkaline Manganese Button Cell (Mercury Free)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Manganese dioxide (1313-13-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)

Potassium hydroxide (1310-58-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)

Graphite (7782-42-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)

Nickel (7440-02-0)
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program) Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

⚠ WARNING: This product can expose you to Nickel (Metallic), which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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Data sources : Supplier's safety documents.

Training advice : Training staff on good practice.

Full text of H-phrases	
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H332	Harmful if inhaled
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number

Abbreviations and acronyms	
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

Indication of changes:
1.1. Product identifier.

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.