

Wertheim, 02/06/2015

Safety Data Sheet

Product: Transferpette[®] electronic accu-pack
Art.No.: 705500

Section 1 - Identification of the substance/preparation and of the company/undertaking

Product Identifier

Product: Nickel Metal Hydride Battery

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

Identified uses: /

Section 2 - Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Acute toxicity, Inhalation (Category 4) Acute toxicity, Oral (Category 4)

Skin corrosion (Category 1A) Carcinogenicity (Category 2)

Skin sensitization (Category 1) Respiratory sensitization (Category 1)

Acute aquatic toxicity (Category 1) Chronic aquatic toxicity (Category 1)

Reproductive toxicity (Category 1B) Germ cell mutagenicity (Category 2)

Specific target organ toxicity - repeated exposure (Category 1)

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn, R20/22 C, R35 T, R40 R42/43 R48/23 R61 R68 N, R50/53

Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

Pictogram



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H360D May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P102 Keep out of reach of children.
P211 Do not spray on an open flame or other ignition source.
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.

Supplemental Hazard Statements none

According to European Directive 67/548/EEC as amended.

Hazard symbol(s)**R-phrase(s)**

R 20/22 Harmful by inhalation and if swallowed.
R 35 Causes severe burns.
R 40 Limited evidence of a carcinogenic effect.
R 42/43 May cause sensitization by inhalation and skin contact.
R 48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R 61 May cause harm to the unborn child.
R 68 Possible risk of irreversible effects.

S-phrase(s)

S 2 Keep out of the reach of children.
S 8 Keep container dry.
S 16 Keep away from sources of ignition - No smoking.
S 24 Avoid contact with eyes.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Other hazards No information available

Section 3 – Composition/Information on Ingredient

Chemical composition

Component	CAS No.	Formula	Composition	EC No.	Classification	GHS CLAS
Nickel hydroxide	12054-48-7	Ni(OH) ₂	15%~40%	235-008-5	Carc. Cat. 1, R49 Repr. Cat. 2, R61 Muta. Cat. 3, R68 T, R48/23 Xn, R20/22 Xi, R38 R42/43 N, R50/53	Carc. 1A Repr. 1B Muta. 2 STOT RE 1 Acute Tox. 4* Acute Tox. 4* Skin Irrit. 2 Resp. Sens. 1 Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1 H350i H360D H341 H372 H332 H302 H315 H334 H317 H400 H410
Nickel	7440-02-0	Ni	20%~30%	231-111-4	Carc. Cat. 3, R40 T, R48/23 R43	Carc. 2 STOT RE 1 Skin Sens. 1 H351 H372 H317
Cobalt	7440-48-4	Co	2%~10%	231-158-0	Xn, R42/43 R53	Resp. Sens. 1 Skin Sens. 1 Aquatic Chronic 4 H334 H317 H413
Iron	7439-89-6	Fe	10%~30%	231-096-4	F, R11	Flam. Sol. 1 H228
Manganese	7439-96-5	Mn	1%~5%	231-105-1	F, R11 R15	Water-react. 2 Flam. Sol. 1 H261 H228
Mischmetal	/	/	8%~15%	/	/	/
Aluminium	7429-90-5	Al	0.3%~1%	231-072-3	F, R15 R17	Water-react. 2 Pyr. Sol. 1 H261 H250
Potassium hydroxide	1310-58-3	KOH	0%~10%	215-181-3	Xn, R22 C,R35	Acute Tox. 4* Skin Corr. 1A H302 H314
Sodium hydroxide	1310-73-2	NaOH	0%~10%	215-185-5	C,R35	Skin Corr. 1A H314
Lithium hydroxide	1310-65-2	LiOH	0%~5%	215-183-4	Xn, R22 C,R35	Acute Tox. 4* Skin Corr. 1A H302 H314

For the full text of H-Statements and R-Phrases mentioned in this Section, see Section 16.

Section 4-First Aid Measures

Description of first aid measures

Eye Contact: If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 15 minutes (remove contact lenses if easily possible). Occasionally lifting the upper and lower eyelids, until no evidence of the chemical remains. Get medical aid.

Skin Contact: If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical advice.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical aid. Loosen tight clothing such as a collar, tie, belt or waistband.

Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention if irritation develops or persists.

WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Notes to Physician: Treat symptomatically.

Section 5 – Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media:

In case of fire where nickel metal hydride batteries are present, apply a smothering agent such as METL-X, sand, dry ground dolomite, or soda ash, or flood the area with water. A smothering agent will extinguish burning nickel metal hydride batteries. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving nickel metal hydride batteries can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended.

Special hazards arising from the substance or mixture:

Thermal decomposition can lead to release of irritating gases and vapors. Batteries evolve flammable hydrogen gas during charging and may increase fire risk in poorly ventilated areas near sparks, excessive heat or open flames. Thermal shock may cause battery case to crack open.

Containers may explode when heated. Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

Advice for firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

If the internal battery material leaks. Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Remove ignition sources, Keep away from heat and flame. Carefully collect batteries and place in an appropriate container for disposal.

Environmental precautions

Prevent material from contaminating soil and from entering sewers or waterways.

Methods and materials for containment and cleaning up

Sweep up and place in suitable containers for recycle or disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

Section 7 - Handling and Storage

Precautions for safe handling

Never seal or encapsulate nickel metal hydride batteries. Do not obstruct safety release vents on batteries.

Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture. Accidental short circuit for a few seconds will not seriously affect the battery. However, this battery is capable of delivering very high short circuit currents. Prolonged short circuits will cause high cell temperatures which can cause skin burns. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, and metal covered tables or metal belts used for assembly of batteries into devices. Do not open battery. The negative electrode material may be pyrophoric. Should an individual cell from a battery become disassembled, spontaneous combustion of the negative electrode is possible.

This is much more likely to happen if the electrode is removed from its metal container. There can be a delay between exposure to air and spontaneous combustion. Replace all batteries in equipment at the same time. Do not carry batteries loose in a pocket or bag. Do not remove battery tester or battery label.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area. Elevated temperatures can result in loss of battery performance, leakage, or rust. Do not refrigerate – this will not make them last longer. Do not expose the battery to open flames, light and heat. Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.

Specific end uses

No data available

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure limits:

CAS# 7440-02-0:

ACGIH: United States- TWA: 1.5 mg/m³ (inhalable)
Australia- TWA: 1 mg/m³
Belgium - TWA: 1 mg/m³
Finland-TWA: 0.1 mg/m³, Skin, Carcinogen
France - VLE: 1 mg/m³
Japan-OEL: 1 mg/m³, 2B Carcinogen
Korea- TWA: 1 mg/m³
Netherlands- MAC-TGG: 1 mg/m³
Russia- STEL: 0.05 mg/m³, Carcinogen

CAS# 7440-48-4:

ACGIH: United States- TWA: 0.02 mg/m³
Australia- TWA: 0.05 mg/m³
Belgium - TWA: 0.02 mg/m³ (fume, dust)
Denmark- TWA: 0.01 mg(Co)/m³
Finland-TWA: 0.05 mg/m³, Skin
Japan-OEL: 0.05 mg/m³, 2B carcinogen
Mexico- TWA: 0.01 mg(Co)/m³
Netherlands- MAC-TGG: 0.02 mg/m³
New Zealand - TWA: 0.05 mg/m³ (dust and fume)
Russia-STEEL: 0.5 mg/m³
United Kingdom- STEL: 2 mg/m³

CAS# 7439-89-6:

Russia- TWA: 10 mg/m³

CAS# 7439-96-5:

ACGIH: United States- TWA: 0.2 mg/m³
Australia-TWA:1 mg/m³ (dust); STEL: 3 mg/m³ (fume)
Belgium - TWA: 0.2 mg/m³
France - VME: 1 mg/m³ (fume)
Netherlands- MAC-TGG: 1 mg/m³
Russia- TWA: 0.1 mg/m³; STEL: 0.6 mg/m³

CAS# 7429-90-5:

ACGIH: United States- TWA: 10 mg/m³ (dust)
Australia- TWA: 2 mg(Al)/m³; 5 mg/m³ (pyro powders); 5 mg/m³ (welding fumes)
Belgium- TWA: 10 mg/m³; 5 mg/m³ (pyro powders); 5 mg/m³ (welding fumes)
Denmark- TWA: 10 mg(Al)/m³; 10 mg/m³ (dust)
France-VME: 10 mg/m³; 5 mg/m³ (fume, resp. dust)
Germany-MAK: 1.5 mg/m³ (respirable)
Japan-OEL: 0.5 mg/m³ (respirable); 2 mg/m³ (total)
Korea- TWA: 10 mg/m³ (metal dust); 5 mg/m³ (pyro powders); 5 mg/m³ (welding fumes)
Netherlands- MAC-TGG: 10 mg/m³
Russia-STEL: 2 mg/m³
United kingdom- TWA: 10 mg/m³ (inhalable); 4 mg/m³ (respirable)

CAS# 1310-58-3:

ACGIH: United States- ceiling concentration 2 mg/m³
Australia- ceiling concentration 2 mg/m³
Belgium - STEL: 2 mg/m³
Denmark- ceiling concentration 2 mg/m³
Finland-TWA: 2 mg/m³
France - VLE: 2 mg/m³
Japan-OEL: continuous 2 mg/m³
Korea-ceiling concentration 2 mg/m³
Netherlands- MAC-TGG: continuous 2 mg/m³
United Kingdom- STEL: 2 mg/m³

CAS# 1310-73-2:

ACGIH: United States- ceiling concentration 2 mg/m³
United kingdom- STEL: 2 mg/m³
Australia - ceiling concentration 2 mg/m³
Belgium - TWA: 2 mg/m³ (as Al)
France - VME: 2 mg/m³
Japan-OEL continuous 2 mg/m³
Netherlands- MAC-TGG: 2 mg/m³

CAS# 1310-65-2:

Japan-OEL: 1 mg/m³
New Zealand - STEL: 1 mg/m³
United Kingdom- STEL: 1 mg/m³

Engineering Controls

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Personal Protective Equipment

Eyes Protection: Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

Skin Protection: Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.

Body Protection: Not necessary under normal conditions. Wear appropriate protective clothing if handling an open or leaking battery.

Respirators Protection: In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. Respiratory Protection is not necessary under conditions of normal use.

Other Protection: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. To maintain good health habits.

Section 9 - Physical and Chemical Properties

Appearance	Form: Cylindrical Colour: Metallic color (without tube)
Odour	Odorless
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	No data available
Water solubility	Insoluble
Partition coefficient: n-octanol/water	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Normal Voltage	3.6 V
Capacitance	680 mAh

Section 10 - Stability and Reactivity

Reactivity No data available

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions

Hazardous Polymerization Will not occur.

Hazardous Reactions None under normal processing.

Conditions to avoid Incompatible materials, excess heat, exposure to moist air or water. Mechanical abuse (such as crushing, piercing, and disassembly) and electrical abuse (such as recharging, voltage reversal and short-circuiting).

Incompatible materials Strong oxidants, strong acids.

Hazardous decomposition products Hazardous decomposition products may formed under fire conditions. Burning nickel metal

hydride batteries can produce toxic fumes including oxides of nickel, cobalt, aluminum and manganese.

Section 11 - Toxicological Information

Information on toxicological effects

Acute toxicity:

CAS# 12054-48-7:

Inhalation, rat: LC50 = 1200 mg/m³/4H;

Oral, rat: LD50 = 1515 mg/kg;

Skin, rat: LD50 > 2 gm/kg;

CAS# 7440-48-4:

Oral, rat: LD50 = 6171 mg/kg;

CAS# 7439-89-6:

Oral, rat: LD50 = 30 gm/kg;

Oral, guinea pig: LD50 = 20 gm/kg;

CAS# 7439-96-5:

Oral, rat: LD50 = 9 gm/kg;

CAS# 1310-58-3:

Oral, rat: LD50 = 273 mg/kg;

CAS# 1310-65-2:

Oral, rat: LD50 = 210 mg/kg;

Oral, mouse: LD50 = 363 mg/kg;

Skin corrosion/irritation

CAS# 1310-73-2: Skin - rabbit - Severe skin irritation - 24 h

Serious eye damage/eye irritation

CAS# 1310-73-2: Eyes - rabbit - Severe eye irritation - 24 h

Respiratory or skin sensitization

May cause allergic skin reaction.

Germ cell mutagenicity

No data available

Carcinogenicity

Nickel hydroxide - This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: Group 1: Carcinogenic to humans.

Nickel - This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. IARC: Group 2B - Possibly carcinogenic to humans.

Cobalt - This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification. IARC: Group 2B - Possibly carcinogenic to humans.

Iron- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Manganese - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Mischmetal- The toxicological properties have not been thoroughly investigated.

Aluminum - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Potassium hydroxide - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Sodium hydroxide - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Lithium hydroxide - IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

CAS# 12054-48-7: Presumed human reproductive toxicant.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

CAS# 12054-48-7: Inhalation - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

No data available

Potential Health Effects

Eye: No special hazard risk under normal use. Contact with battery contents may cause severe irritation and burns. Contact can also cause ulceration of the conjunctiva and cornea. Eye damage is possible.

Skin: No special hazard risk under normal use. Contact with battery contents may cause severe irritation and burns. May be absorbed through the skin causing localized inflammation. Nickel, nickel compounds, cobalt, and cobalt compounds can cause skin sensitization and an allergic contact dermatitis.

Ingestion: Swallowing a battery can be harmful. May cause severe and permanent damage to the digestive tract. May cause circulatory system failure. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

Inhalation: Inhalation of a mist of this material may cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Hypersensitivity to nickel can cause allergic pulmonary asthma.

Signs and Symptoms of Exposure

The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically or electrically abused. Damaged battery will release concentrated potassium hydroxide and sodium hydroxide, which is caustic. May explode or leak, and cause burn injury, if recharged, disposed of in fire, mixed with a different battery type, inserted backwards or disassembled. Replace all used batteries at the same time. Do not carry batteries loose in your pocket or purse. Do not remove the battery label.

Additional Information

RTECS#: CAS# 12054-48-7: QR7040000/ CAS# 7440-02-0: QR5950000/
CAS# 7440-48-4: GF8750000/ CAS# 7439-89-6: NO4565500 /

CAS# 7439-96-5: 009275000/ CAS# 7429-90-5: BD0330000/
 CAS# 1310-58-3: TT2100000/ CAS# 1310-73-2: OJ6307070/
 CAS# 1310-65-2: OJ6307070

Section 12 - Ecological Information

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

No data available

Other adverse effects

When promptly used or disposed the battery does not present environmental hazard. When disposed, keep away from water, rain and snow.

Section 13 - Disposal Considerations

Waste treatment methods

Waste from Residues / Unused Products: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

Contaminated packaging: Contaminated packaging material should be treated equivalent to residual chemical. Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation.

Section 14 - Transport Information

Shipping Name (UN Number) Nickel-metal hydride battery (UN3496)

Hazard Class Class 9 (Miscellaneous)

Packing group --

Nickel metal hydride cylindrical cells/batteries are considered to be "dry cell" batteries and are

Method	Organization	Special Provision
Air	IATA	A199
Marine	IMDG	SP117, SP963
Rail/Road	RID/ADR	NOT SUBJECT TO ADR

unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civic Aviation Administration (ICAO), International Air Transport Association (IATA), the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) and the regulations concerning the international transport of dangerous goods by rail (RID).

IATA DGR: Special Provision A199: is a new special provision assigned against the entry for Batteries, nickel-metal hydride. The special provision identifies that UN 3496 only applies in sea

transport and that provided that nickel-metal hydride batteries are prepared in accordance with the special provision they are "not restricted" in air transport.

RID/ADR: NOT SUBJECT TO ADR

Section 15 - Regulatory Information

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

No data available

Canada

All chemicals in this product with known CAS numbers are listed on Canada's DSL List.

US Federal

Toxic Substance Control Act (TSCA)

All chemicals in this product with known CAS numbers are listed on the TSCA Inventory.

Section 16 - Additional Information

MSDS Creation Date: Feb 06, 2015

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Text of H-code(s) and R-phrase(s) mentioned in Section 3

Carc. 1A: Carcinogenicity (Category 1A)

Carc. 2: Carcinogenicity (Category 2)

Repr. 1B: Reproductive toxicity (Category 1B)

Muta. 2: Germ cell mutagenicity (Category 2)

STOT RE 1: Specific target organ toxicity - repeated exposure (Category 1)

Acute Tox. 4* : Acute toxicity, Inhalation (Category 4)

Acute Tox. 4* : Acute toxicity, Oral (Category 4)

Skin Irrit. 2: Skin irritation (Category 2)

Resp. Sens. 1: Respiratory sensitization (Category 1)

Skin Sens. 1: Skin sensitization (Category 1)

Aquatic Acute 1: Acute aquatic toxicity (Category 1)

Aquatic Chronic 1: Chronic aquatic toxicity (Category 1)

Aquatic Chronic 4: Chronic aquatic toxicity (Category 4)

Flam. Sol. 1: Flammable solid (Category 1)

Water-react. 2: Substance or mixture which in contact with water emits flammable gas (Category 2)

Pyr. Sol. 1: Pyrophoric solid (Category 1)

Skin Corr. 1A: Skin corrosion (Category 1A)

H228 Flammable solid.

H250 Catches fire spontaneously if exposed to air.

H260 In contact with water releases flammable gases which may ignite spontaneously.
H261 In contact with water releases flammable gas.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
H350i May cause cancer by inhalation.
H351 Suspected of causing cancer.
H360D May damage the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H413 May cause long lasting harmful effects to aquatic life.
R11 Highly flammable.
R15 Contact with water liberates extremely flammable gases.
R17 Spontaneously flammable in air.
R20/22 Harmful by inhalation and if swallowed.
R22 Harmful if swallowed.
R35 Causes severe burns.
R38 Irritating to skin.
R40 Limited evidence of a carcinogenic effect.
R42/43 May cause sensitization by inhalation and skin contact.
R43 May cause sensitization by skin contact.
R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R49 May cause cancer by inhalation.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53 May cause long-term adverse effects in the aquatic environment.
R61 May cause harm to the unborn child.
R68 Possible risk of irreversible effects.

Other Information:

ACGIH: (American Conference of Governmental Industrial Hygienists) ; CAS: (Chemical Abstracts Service); DSL: (the Domestic Substances List of Canada); EC: (European Commission)

IARC: (International Agency for Research on Cancer); IATA: (International Air Transport Association); IM DG: (International Maritime Dangerous Goods); ADR: (European Agreement Concerning the International Carriage of Dangerous Goods by Road); RID: (Regulations Concerning the International Carriage of Dangerous Goods by Rail); LD50: (Lethal dose, 50 percent kill); NDSL: (the Non-domestic Substances List of Canada); NIOSH: (US National Institute for Occupational Safety and Health); NTP: (US National Toxicology Program); OSHA: (US Occupational Safety and Health); PEL: (Permissible Exposure Level); REL: (Recommended Exposure Limit); RTECS: (Registry of Toxic Effects of Chemical Substances); STEL: (Short Term

Exposure Limit); TDG: (Recommendations on the TRANSPORT OF DANGEROUS GOODS Model Regulations); TSCA: (Toxic Substances Control Act of USA); TWA: (Time Weighted Average); TLV: (Threshold Limit Value)

Best regards

BRAND GMBH + CO KG

i. V.



Dr. Antonio Romaguera
Head of Product Management

i. A.



Kathrin Kraft
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