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----------ISO 9001: 2015----------

MATERIAL SAFETY DATA SHEET

1 Product identifiers
Product name : Tris hydrochloride, 98%+
Product Code : T 2385
CAS-No. : 1185-53-1

SECTION 2: Hazards identification
2.1 Classification of the substance or mixture
Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.
2.2 Label elements
Not a hazardous substance or mixture according to Regulation (EC) No 1272/2008.
2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients
3.1 Substances
Formula : C4H11NO3·ClH
Molecular weight : 157,60 g/mol
CAS-No. : 1185-53-1
EC-No. : 214-684-5
No components need to be disclosed according to the applicable regulations.

SECTION 4: First aid measures
4.1 Description of first-aid measures
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.
In case of skin contact
Wash off with soap and plenty of water.
In case of eye contact
Flush eyes with water as a precaution.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures
5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)
Hydrogen chloride gas
5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.
5.4 Further information
No data available

SECTION 6: Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapors, mist or gas.
For personal protection see section 8.
6.2 Environmental precautions
No special environmental precautions required.
6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.
6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage
7.1 Precautions for safe handling
Advice on protection against fire and explosion
Provide appropriate exhaust ventilation at places where dust is formed.
Hygiene measures
General industrial hygiene practice.
For precautions see section 2.2.
7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Keep container tightly closed in a dry and well-ventilated place. Store in cool place.
Storage class
Storage class (TRGS 510): 11: Combustible Solids
7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection
8.1 Control parameters
Ingredients with workplace control parameters
8.2 Exposure controls
Personal protective equipment
Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure
No special environmental precautions required.

SECTION 9: Physical and chemical properties
9.1 Information on basic physical and chemical properties
a) Physical state solid
b) Color No data available
c) Odor No data available
d) Melting
point/freezing point
150 - 152 °C
e) Initial boiling point
and boiling range
No data available
f) Flammability (solid,
gas)
No data available
g) Upper/lower
flammability or
explosive limits
No data available
h) Flash point No data available
i) Autoignition
temperature
No data available
j) Decomposition

temperature
No data available
k) pH No data available
l) Viscosity Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
m) Water solubility No data available
n) Partition coefficient:
n-octanol/water
No data available
o) Vapor pressure No data available
p) Density No data available
Relative density No data available
q) Relative vapor
density
No data available
r) Particle
characteristics
No data available
s) Explosive properties No data available
9.2 Other safety information
No data available

SECTION 10: Stability and reactivity
10.1 Reactivity
No data available
10.2 Chemical stability
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
No data available
10.4 Conditions to avoid
No data available
10.5 Incompatible materials
Bases, Oxidizing agents
10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information
11.1 Information on toxicological effects
Acute toxicity
LD50 Oral - Rat - female - > 5.000 mg/kg
(OECD Test Guideline 425)
Inhalation: No data available
LD50 Dermal - Rat - male and female - > 5.000 mg/kg
(OECD Test Guideline 402)
Skin corrosion/irritation
Skin - reconstructed human epidermis (RhE)
Result: No skin irritation
(OECD Test Guideline 439)
Serious eye damage/eye irritation
Eyes - Bovine cornea
Result: No eye irritation - 4 h
(OECD Test Guideline 437)
Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)
Germ cell mutagenicity
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476
Result: negative
Carcinogenicity
No data available
Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available
11.2 Additional Information
Repeated dose toxicity - Rat - male and female - Oral - NOAEL (No observed adverse effect level) - > 1.000 mg/kg
irritant effects
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information
12.1 Toxicity
Toxicity to fish static test LC50 - Leuciscus idus (Golden orfe) - 460 mg/l - 96 h
(OECD Test Guideline 203)
Remarks: (in analogy to similar products)
The value is given in analogy to the following substances:
Tris(hydroxymethyl)aminomethane
Toxicity to daphnia
and other aquatic
invertebrates
static test EC50 - Daphnia magna (Water flea) - > 117 mg/l - 48 h
(OECD Test Guideline 202)
Toxicity to bacteria static test EC50 - activated sludge - > 1.000 mg/l - 3 h
(OECD Test Guideline 209)
12.2 Persistence and degradability
Biodegradability aerobic - Exposure time 28 d
Result: 97,1 % - Readily biodegradable.
(OECD Test Guideline 301F)
12.3 Bioaccumulative potential
No data available
12.4 Mobility in soil
No data available
12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
12.6 Endocrine disrupting properties
No data available
12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations
13.1 Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information
14.1 UN number
ADR/RID: - IMDG: - IATA: -
14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods
14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -
14.4 Packaging group
ADR/RID: - IMDG: - IATA: -
14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
Further information
Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other Information
This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.