SAFETY DATA SHEET

according to 1907/2006/EC, article 31

TPD 181 T, TPD 182 T, TPD 185 T, TPD 188 T, TPD 189 T, TPD 190 T, TPD 195 T, TPDS 190 T

Revision date: 2023-08-17
Version: 6, revision 5
Replace: 2021-03-08

SECTION 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Product name:	TPD 181 T, TPD 182 T, TPD 185 T, TPD 188 T, TPD 189 T, TPD 190 T, TPD 195 T, TPDS 190 T
Substance:	ALUMINIUM PASTE IN DIETHYLENE GLYCOL
UFI:	QJ40-50HF-7006-P9KP

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

Identified uses: Pigments

1.3 Details of the supplier of the safety data sheet.

Manufacturer: CARLFORS BRUK AB
BOX 44
SE-561 21 HUSKVARNA SWEDEN
Tel: +46 36389500
E-mail: cb@carlfors.se

1.4 Emergency telephone number.

Emergency number: +46 8337043

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

Classification according to: CLP/GHS EC No 1272/2008.

Acute tox 4. H302

Note T regulation (EC) No 1272/2008: This product may be marketed in a form which does not have the physical hazards as indicated in the entry in part 3. Tests were done according to Transport of dangerous goods, Manual of tests and criteria.

Additional Information: See dection 16.

2.2 Label elements:

Label elements according to Regulation (EC) No 1272/2008 (CLP).

Hazard pictograms: GHS07

Signal word: Warning

Hazard Statements:

H302 Harmful if swallowed.

Precautionary statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330 Rinse mouth.
P370 + P378 In case of fire: Use sand, mineral wool or special powder for metal fire, never use water, halones, foam or carbon dioxide.
P402 + P404 Store in a dry place. Store in a closed container.

2.3 Other hazards:

The product is not classified as dangerous for the environment. This substance/mixture contains no components considered to be either persistent, biaccumulative and toxic (PBT), or very persistent and very biaccumulative (vPvB) at levels of 0,1 % or higher.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

3.2 Mixtures

Chemical name	Cas-no:	Einecs no:	REACH registration no:	Contents %
Aluminium powder (stabilized)	7429-90-5	231-072-3	01-2119529243-45-0051	68-72
GHS/CLP-classification:*	Flam. Sol. 1, H228. refer to note T in EC 1272/2008. Test method in Transport of dangerous goods, Manual of tests and criteria section 33.4, has been used.			

Chemical name	Cas-no:	Einecs no:	REACH registration no:	Contents %
Diethylene glycol	111-46-6	203-872-2	01-2119457857-21-xxxx	27-32
GHS/CLP-classification:*	Acute tox 4. H302			

* See section 16.

SECTION 4. FIRST-AID MEASURES

4.1 Description of first aid measures:

General information: No additional information available.

Inhalation: Fresh air and rest.

Skin contact: Take of contaminated clothes, wash skin with water and soap.

Eye contact: Remove any contact lenses. Rinse immediately with plenty of water, also under the eyelids. Call doctor if irritation persists.

Ingestion: If swallowed, seek medical attention. Rinse mouth.

4.2 Most important symptoms and effects, both acute and delayed: See section 11.

4.3 Indication of any immediate medical attention and special treatment needed: No further relevant information available.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media:

Suitable extinguishing agents: Extinguish fire with sand and mineral wool. Can also be extinguished with foam or carbon dioxide during the first minutes when the solvent in the aluminium paste is burning. After a short time, when the solvent has burned, it is a metal fire, and then only use sand, mineral wool or special powder for metal fires.

Unsuitable extinguishing agents: Do not use water.

5.2 Special hazards arising from the substance or mixture: No further relevant information available.

5.3 Advice for firefighters: No special measures required.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
Wear protective equipment. Eliminate fire and explosion risk by keeping ignition sources out of the area.

6.2 Environmental precautions:
Do not allow product to reach sewage system or water resources. Inform authorities in case product reaches water or sewage system.

6.3 Methods and material for containment and cleaning up:
Collect mechanically. Absorb with liquid binding material (sand, diatomite, universal binders, sawdust) and put in a dry receptacle. Do not flush with water or aqueaous cleaning agents. Dispose of waste material in accordance with local, state or federal regulations.

6.4 Reference to other sections:
See section 7 for safe handling. See section 8 for protective equipment. See section 13 for waste treatment methods.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling:
Mechanical ventilation and local exhaust can be needed. Keep drums closed as far as possible. Avoid direct contact with aluminium paste. No smoking, fire, sparks or welding. Prevent sparks arising from static electricity.

Wash hands during breaks and at the end of the work. Keep away from foodstuffs, beverages and feed. Do not eat, drink, smoke or sniff while working. Water for eye flushing to be available.

7.2 Conditions for safe storage, including any incompatibilities:
Store in a cool, well-ventilated, dry place in tightly closed containers. Protect from direct sunlight. Keep away from sources of ignition-No smoking.

7.3 Specific end use(s):
See section 1, identified uses.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

DNEL long-term, worker, for aluminium metal powder/dust is 3,72 mg aluminium/m3.
PNEC-values from 46-17800 µg/l depending on water chemistry.

DNEL diethylene glycol, worker, long-term systemic effects: Inhalation 44 mg/m3. Dermal 43 mg/kg bw/day.
PNEC fresh water 10 mg/l.

Occupational exposure limits (limit value - eight hours):

	Aluminium powder (stabilized)	Diethylene glycol
Austria	10 mg/m3	10 ppm
Canada - Québec	10 mg/m3	
Denmark	5 mg/m3 (inhalable aerosol)	2,5 ppm
	2 mg/m3 (respirable)	
France	10 mg/m3 (inhalable aerosol)	
	5 mg/m3 (respirable aerosol)	
Germany	4 mg/m3 (inhalable aerosol)	
	1,5 mg/m3 (respirable aerosol)	10 ppm
Hungary	6 mg/m3 (respirable aerosol)	
Spain	5 mg/m3 (respirable aerosol)	
	10 mg/m3 (inhalable aerosol)	
United Kingdom	4 mg/m3 (respirable aerosol)	23 ppm
	10 mg/m3 (inhalable aerosol)	
USA	15 mg/m3 (total dust)	
	5 mg/m3 (repirable dust)	

8.2 Exposure controls:

General protective and hygienic measures: Wash hands during breaks and at the end of the work. Keep away from foodstuffs, beverages and feed. Do not eat, drink, smoke or sniff while working.

Personal protective equipment:

Breathing equipment: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. Mask with filter A-P2 can be used.

Protection of hands: Wear suitable gloves (EN 374), for example natural rubber. Change protective gloves regularly.

Eye protection: Face shield or protective goggles if there is a risk of splashing.

Skin protection: Protective clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

* Refer to diethylene glycol

9.1 Information on basic physical and chemical properties:

Physical state	Paste
Colour	Grey
Odour	* Odorless
Melting point/freezing point (°C)	* -6,5
Initial boiling point/boiling range (°C)	* 244,9
Flammability (solid, gas)	Not classified as flammable solid.
Lower and upper explosion limit	* 1,7-37
Flash point (°C)	* 138, closed cup
Auto-ignition temperature (°C)	* 372
pH	NA
Solubility in water (weight-%)	* Miscible
Partition coefficient, log Pow (log value)	* -1,98
Density (g/cm³)	0,8-1,2 (Density = volume weight)
Relative vapour density (air=1)	* 3,7
Particle characteristics	Aluminium paste containing aluminium powder with average diameter between 17-90 micrometers. Measuring instrument Malvern. See technical data sheet for more information.
9.2 Other information:	No additional information available.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity:

Not classified as flammable solid.

10.2 Chemical Stability:

The product is stable if used and stored according to specifications.

10.3 Possibility of hazardous reactions:

Hydrogen development with water, alkali and acid.Don't mix with oxidizing agents

10.4 Conditions to avoid:

Keep away from sources of ignition and heat.

10.5 Incompatible material:

Reacts with alkalis, acids, water and oxidizing agents.

10.6 Hazardous decomposition products:

Fire can cause development of carbon oxides, carbonyl compounds, dioxolane derivatives.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008:

Aluminium powder: Oral LD50 (rat) > 2000 mg/kg bw. Inhalation LC50 (rat) > 888 mg/m3. Inhalation NOAEC (rat) = 10 mg/m3.
Diethylene glycol: Oral LD50 (person) app. 1000 mg/kg, Dermal LD50 (rabbit) 13300 mg/kg, Inhalation LC50 (rat, 4 h) 4,6 mg/l.

Inhalation: Vapour concentrations above recommended exposure levels may cause headache, dizziness and tiredness.

Skin contact: Can cause skin irritation.

Eyes: Causes smart.

Ingestion: Harmful if swallowed. Can cause dizziness, nausea, stomach pain, muscle weakness and loss of consciousness. Kidney damage and possible liver and brain damage may apply.

Skin corrosion/irritation. Based on available data the classification criteria are not met.
Serious eye damage/irritation: Based on available data the classification criteria are not met.
Respiratory or skin sensitization: Based on available data the classification criteria are not met.
CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction): Based on available data the classification criteria are not met.
STOT – single exposure: Based on available data the classification criteria are not met.
STOT – repeated exposure: Based on available data the classification criteria are not met.

11.2 Information on other hazards:

No further information.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity:

Aluminium powder is not classified as dangerous for the environment.

Diethlene glycol is not classified as dangerous for the environment. (Acute toxicity)
LC50 (fish, pimephales promelas) 96 h: 75 000 mg/l.
EC50 (daphnia magna) 48 h: > 10 000 mg/l.
EC50 (Scenedesmus quadricauda; 8 d): 2700 mg/l

The product aluminium paste in diethylene glycol is not classified as dangerous for the environment.

12.2 Persistence and degradability:

Diethylene glycol is readily biodegradable. 90-100 % 28 d (OECD TG 301 A).

12.3 Bioaccumulative potential:

Diethylene glycol BCF 100

12.4 Mobility in soil:

Aluminium paste is a solid material and is not expected to penetrate into the soil.

12.5 Results of PBT and vPvB assessments:

This product is not, or does not contain, a substance that is a PBT or a vPvB.

12.6 Endocrine disrupting properties:

The product is non-endocrine disrupting.

12.7 Other adverse effects.

No additional information available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Dispose of waste material in accordance with local, state or federal regulations. Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
European waste catalogue: 12 01 04 – Non-ferrous metal dust and particles.
Empty contaminated packaging thoroughly. They can be recycled after thorough and proper cleaning.

SECTION 14. TRANSPORT INFORMATION

	ADR/RID	IATA	IMDG
14.1 UN No			
14.3 Transport hazard class(es)			
14.4 Packing group			
EmS No			
Tunnel category			

Not classified as dangerous goods.

14.2 UN proper shipping name:

-

14.5 Environmental hazards: No

14.6 Special precautions for user:

Handling and storage according to section 7.

14.7 Maritime transport in bulk according to IMO instruments:

NA

SECTION 15. REGULATORY INFORMATION

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

Reference: EC no. 1907/2006, EC no. 1272/2008, (EU) 2020/878, IFA-databases on hazardous substances (GESTIS), CSR for aluminium and Material safety data sheet for diethylene glycol.

15.2 Chemical safety assessment: No

Regulated explosive precursors:

"This product is regulated by Regulation (EU) 2019/1148: all suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point. Please see https://ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/policies/crisis-and-terrorism/explosives/explosives-precursors/docs/list_of_competent_authorities_and_national_contact_points_en.pdf."

SECTION 16. OTHER INFORMATION

H228 Flammable solid.
H302 Harmful if swallowed.
Flam. Sol. 1 = Flammable solid, category 1
Acute tox 4. = Acute toxicity, category 4

List of abbreviations
ADR Accord Européen relatief au transport international des marchandises dangereuses par Route.
CAS No. Chemical abstracts service number.
CLP Regulation on Classification, Labelling and packaging of Substances and Mixtures.
CSR Chemical safety report
DNEL Derived NO-Effect Level.
EINECS European Inventory of Existing Commercial Substances.
EWC European Waste Catalogue.
IATA International Air Transport Association
ICAO International Civil Aviation Organization
IMDG International Maritime Dangerous Goods
IMO International Maritime Organization
LC Lethal Concentration
LD Lethal Dose
Marpol International Convention for the Prevention of Pollution from ships.
NOAL No observable adverse effect level.
NOEL/NOEC No observed – effect level/concentration.
PBT Persistent, biaccumulative, toxic.
PNEC Predicted No-Effect Concentration.
REACH Registration, Evaluation, Authorisation, and restriction of Chemicals.
RID Règlement concernant le transport international ferroviaire de marchandises dangereuses.
TWA Time-weighted average.
vPvB Very persistent, very biaccumulative

Revision has been done under following section 1. Take the place of 2021-03-08.