

# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

Date of issue: 01.10.2019

Date of revision: -

Version: 1.0

Supersedes version: -



## 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Trade name: [HG-NPT17](#)  
Synonym: [TiO<sub>2</sub>-paste, Titanium \(IV\) oxide](#)  
Index-No.: -  
EG-No.: -  
CAS-No.: -  
REACH Registration No: -  
Product description: [TiO<sub>2</sub>-paste for solar cells](#)

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

Identified uses: [for application in solar cells](#)  
Uses advised against: -

### 1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier:  
[H.Glass SA](#)  
[Z. I. du Vivier 16](#)  
[1690 Villaz-St-Pierre](#)  
[Switzerland](#)

Telephone [0041 24 424 31 47](#)

E-Mail [info@h.glass](mailto:info@h.glass)

### 1.4 Emergency telephone number

[Tox Info Suisse](#)

[Telephone 145](#)

## 2. Hazards identification

### 2.1 Classification of the substance or mixture

Based on the calculation methods according to Regulation (EC) No 1272/2008 [CLP] the product is classified as hazardous.

[Flammable liquids, Cat. 3: H226](#)  
[Skin irritation, Category 2; H315](#)  
[Serious eye damage, Category 1; H318](#)  
[Specific Target Organ Toxicity \(single exposure\), Category 3; H336](#)

#### Additional information

[none](#)

### 2.2 Labelling elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms:



[GHS02](#)



[GHS05](#)



[GHS07](#)

Signal word: [DANGER](#)

Hazard components for labelling: [n-propanol, 2-amino-2-methyl-1-propanol](#)

# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

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## Hazard statements:

H226: Flammable liquid

H315: Causes skin irritation

H318: Causes serious eye damage

H336: May cause drowsiness or dizziness

## Precautionary statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P243: Take precautionary measures against static discharge.

P280: Wear protective gloves /eye protection.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P332+313: If skin irritation occurs: Get medical advice/attention.

P403+233: Store in a well ventilated place. Keep container tightly closed.

Additional labelling: -

## 2.3 Other hazards

The 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.

## 3. Composition/information on ingredients

### 3.1 Substances

The product is a mixture.

### 3.2 Mixtures

Substance name	CAS-N°	EC-N°	Content [wt.%]	Classification according to (EG) N° 1272/2008
n-Propanol	71-23-8	200-746-9	40 – 50	Highly flammable liquids, Category 2; H225 Serious eye damage, Category 1; H318 Specific Target Organ Toxicity (single exposure), Category 3; H336
Titanium dioxide	1317-70-0	215-280-1	22 – 24	-
Texanol	25265-77-4	246-771-9	15 – 20	-
2-Amino-2-methyl-1-propanol	124-68-5	204-709-8	1.5 – 10	Skin irritation, Category 2; H315 Serious eye damage, Category 1; H318 Hazardous to the aquatic environment, Chronic Category 3; H412

## 4. First-aid measures

### 4.1 Description of first aid measures

After inhalation: Move the affected person to fresh air and ensure unhindered breathing. In case of symptoms, seek immediate medical attention. If breathing stops, apply artificial respiration.

After skin contact: Remove contaminated clothes. Wash skin cautiously with water for several minutes. Consult doctor in case of symptoms.

After eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if worn and easy to do. Continue rinsing. If symptoms persist, seek immediate medical attention.

After ingestion: Rinse mouth and give 1-2 glasses of water to drink. Do not induce vomiting. Arrange medical treatment.

# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

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## 4.2 Most important symptoms and effects, both acute and delayed

After eye contact: Irritation / redness, burning/stinging sensation, foreign body sensation, conjunctivitis, possible corneal damage

After inhalation: Narcotic effects on the central nervous system. Irritation of upper airways.

After ingestion: Narcotic effect on the central nervous system. Irritation of the gastrointestinal tract, nausea, vomiting, disturbed coordination, headache.

After skin contact: Irritation and possible sensitization of the skin. Prolonged or repeated contact may provoke allergic reactions of the skin.

## 4.3 Indication of any immediate medical attention and special treatment needed

No data available.

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# 5. Firefighting measures

## 5.1 Extinguishing media

Suitable extinguishing media: Powder, foam, carbon dioxide, water fog.

Unsuitable extinguishing media: Water jet

## 5.2 Special hazards arising from the substance or mixture

Formation of hazardous smoke or vapours possible. Avoid inhalation of smoke and vapours.

## 5.3 Advice for firefighters

Move container from area, if it can be done without risk. Avoid inhalation of vapours or smoke. Wear self-contained breathing apparatus and chemical resistant gloves.

Contain contaminated extinguishing water.

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# 6. Accidental release measures

## 6.1 Personal precautions, protective equipment and emergency procedures

Secure the danger zone. Provide good ventilation.

Avoid skin and eye contact. Use personal protective equipment (see chapter 8).

Advice for emergency responders: Personal protective equipment according to EN 469 is recommended.

## 6.2 Environmental precautions

Do not allow product or residues to enter into sewage.

## 6.3 Methods and material for containment and cleaning up

Product can be absorbed with wiping towels. Dispose of product according to chapter 13.

## 6.4 Reference to other sections

Information on safe handling: see chapter 7.

Information on PSA: see chapter 8.

Information on disposal: see chapter 13.

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# 7. Handling and storage

## 7.1 Precautions for safe handling

Avoid skin and eye contact.

Wash hands thoroughly after handling.

Avoid heat, ignition sources and static discharge. Do not smoke.

Provide good ventilation at workplace.

## 7.2 Conditions for safe storage, including any incompatibilities

Storage: Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Advice on storage assembly: Store apart from strong oxidizers (storage class 5.1A).

Storage class: 3 (Flammable liquid substances)

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

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## 8. Exposure control and personal protection

### 8.1 Control parameters

#### 8.1.1 Occupational exposure limit values:

Threshold limit values according to SUVA:					
Substance name	CAS-N°	MAC (ppm)	MAC (mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )
n-Propanol	71-28-3	200	500	-	-
Titanium dioxide	1317-70-0	-	10 *	-	-
Texanol	25265-77-4	-	-	-	-
2-Amino-2-methyl-1-propanol	124-68-5	2.4	8.7	4.8	17.4

\*general exposure value limit for inhalable dusts

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls:

Provide sufficient ventilation, e.g. by local exhaust ventilation. Ensure appropriate decontamination and cleaning equipment (running water, eye-wash station).

#### 8.2.2 Individual protective measures, personal protective equipment

##### Eye / face protection

Protective glasses with side protection (EN 166).

##### Skin protection

Skin contact can cause skin irritation. Use protective gloves (Recommendation : gloves with chemical protection according to EN 374-3).

##### Other skin protection

Skin protection according to SUVA information booklet 44074 is recommended.

##### Respiratory protection

Not necessary if sufficient ventilation is provided. For short-term exceedances of the threshold limit values of 2-Propanol use filtrating half mask according to EN 140 with filter A P2.

##### Body protection

Standard work clothes.

##### General protective and hygiene measures:

Do not eat, drink or smoke during work.

#### 8.2.3 Environmental exposure controls

Ensure compliance with local emission standards.

## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state:	Gel
Colour:	White
Odour:	No data available
Odour threshold:	No data available
pH-value:	No data available
Melting point:	No data available
Boiling point:	No data available
Flashpoint:	No data available
Ignition temperature:	No data available

# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

Date of issue: 01.10.2019

Date of revision: -

Version: 1.0

Supersedes version: -



Evaporation rate:	No data available
Explosion hazard:	No data available
Lower / upper explosion limits:	No data available
Oxidizing properties:	No data available
Vapour pressure:	No data available
Vapour density:	No data available
Density at 20 °C:	No data available
Solubility in water:	No data available
Self-ignition	No data available
Decomposition temperature	No data available
Viscosity:	No data available
log K <sub>ow</sub> :	No data available

## 9.2 Other information

None.

## 10. Stability and reactivity

### 10.1 Reactivity

The product is flammable.

### 10.2 Chemical stability

The product is stable when used according to the instructions for use (see chapter 7). The product does not polymerize dangerously.

### 10.3 Possibility of hazardous reactions

The product is flammable.

### 10.4 Conditions to avoid

Keep away from open flames, heat and ignition sources. Take precautions against static discharge.

### 10.5 Incompatible materials

Strong oxidizers.

### 10.6 Hazardous decomposition products

The product will not degrade to unstable products when used according to the instructions for use. In case of fire, toxic smoke gases may form (CO).

## 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

#### For ingredients:

Substance name	CAS-N°	LD <sub>50</sub> oral (test organism)	LD <sub>50</sub> dermal (test organism)	LC <sub>50</sub> inhalation (test organism)
n-Propanol	71-28-3	1870 mg/kg (rat)	5040 mg/kg (rabbit)	No data available
Titanium dioxide	1317-70-0	No data available.	No data available.	No data available.
Texanol	25265-77-4	3200 mg/kg (rat)	No data available.	No data available
2-Amino-2-methyl-1-propanol	124-68-5	2900 mg/kg (rat)	> 2000 mg/kg	No data available.

(relevant exposure routes: ingestion, inhalation, skin contact)

#### For product:

The product is not classified. No test data are available.

#### Skin corrosion / irritation:

The product is not classified. The product does not contain substances classified as corrosive or irritating to skin. An irritation of the skin by the liquid product can occur with particularly sensitive people. (relevant exposure routes: skin contact)

# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

Date of issue: 01.10.2019

Date of revision: -

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Supersedes version: -



## Serious eye damage / eye irritation

The liquid product causes severe eye irritation. (relevant exposure routes: eye contact)

## Respiratory or skin sensitization

The product is not classified. The product does not contain substances classified as sensitizing. An allergic reaction of the skin with particularly sensitive people cannot be ruled out.

## Germ cell mutagenicity

The product is not classified. The product does not contain substances classified as mutagenic.

## Carcinogenicity

The product is not classified. The product does not contain substances classified as carcinogenic.

## Reproductive toxicity

The product is not classified. The product does not contain substances classified as toxic for reproduction.

## Specific target organ toxicity, repeated exposure

The product is not classified. The product does not contain substances classified as, specific target organ toxicant after repeated exposure.

## Specific target organ toxicity, single exposure

Narcotic effect on the central nervous system: Vapours of the liquid product can induce drowsiness and dizziness. (relevant exposure routes: inhalation, ingestion)

## Aspiration hazard

The product is not classified. The product does not contain any substances classified as aspiration hazard.

## Other toxicological properties

Not known.

## 12. Ecological information

### 12.1 Ecotoxicity

#### For ingredients:

Substance name	CAS-N°	Indicator	Value (median)
n-Propanol	71-28-3	LC50 (96 hours, fish)	4480 mg/L
		LC50 (48 hours, crustaceans)	6300 mg/L
		EC50 (48 hours, crustaceans)	4130 mg/L
		EC50 (72 and 96 hours, algae)	4480 mg/L
Titanium dioxide	1317-70-0	No data available.	-
Texanol	25265-77-4	No data available.	-
2-Amino-2-methyl-1-propanol	124-68-5	No data available.	-

#### For product:

The product is not classified. No test data are available.

### 12.2 Persistence and degradability

No data available.

### 12.3 Bioaccumulative potential

No data available.

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

The 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 Other adverse effects

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# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

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## 13. Disposal considerations

### 13.1 Waste treatment methods

#### Product (full, empty and partly emptied aerosol dispensers)

Remove as hazardous waste.

Waste disposal code:

Ordinance on the movement of waste SR 814.610:

16 05 06

[S] Laboratory chemicals consisting of or containing dangerous substances, including mixtures of laboratory chemicals

#### Absorbing agents polluted with product:

Remove as hazardous waste.

Waste disposal code:

Ordinance on the movement of waste SR 814.610:

15 02 02

[S] absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances

## 14. Transport information

The product is classified as dangerous good according to transport regulations.

### 14.1 UN Number

UN 1274

Exemptions related to dangerous goods packed in limited or excepted quantities.

Limited Quantity LQ: 5 L

Limit for excepted Packages: 30 mL

### 14.2 UN proper shipping name

N-PROPANOL

### 14.3 Transport hazard class

ADR / RID / IMDG-Code / IATA-Dangerous Goods Regulations

3

### 14.4 Packing group

III

### 14.5 Environmental hazards

Label environmentally hazardous substances

ADR / RID / IMDG-Code: no

IATA-DGR: no

### 14.6 Special precautions for user

Hazard identification number: 30

Classification code: F1

Tunnel restrictions: passage forbidden through tunnels of category (D/E).

### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Pollution category (X, Y or Z): not classified

Ship type (1, 2 or 3) : not classified

## 15. Regulatory information

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

Water pollution class according to VwVwS:

Class 1, weak water pollutant (derived from n-propanol).

# Material Safety Data Sheet according to Regulation (EG) No 1907/ 2006

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Supersedes version: -



Chemicals Ordinance (ChemO) SR 813.11:  
Group according to Art. 61 ChemO: no group.

Major Accident Ordinance (MAO) SR 814.012:  
Quantity threshold according to MAO: 20'000 kg

Restrictions according to Chemical Risk Reduction Ordinance (ORRChem) 814.81:  
No restrictions.

VOC-Ordinance (OVOC) SR 814.018:  
n-Propanol is listed in annex 1 of the Ordinance on the Incentive Tax on Volatile Organic Compounds.  
VOC-content: 50%.

## 15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out for this product by the supplier.

## 16. Other information

Changes made since last edition

None, first edition.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par route

CAS: Chemical Abstracts Service

ChemO: Ordinance on Protection against Dangerous Substances and Preparations SR 813.11

CLP: Classification, Labelling and Packaging of Chemicals

EC: effect concentration

FDHA: Federal Department of Home Affairs

FOEN: Federal Office for the Environment

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

GWP: Global warming potential

IATA: International Air Transport Association

IMDG: International Maritime Code for Dangerous Goods

LC: lethal concentration

LD: lethal dose

MAC: maximum admissible concentration at workplace

MAO: Ordinance on Protection against Major Accidents SR 814.012

NOEC: No Observed Effect Concentration

OVOC: Ordinance on the Incentive Tax on Volatile Organic Compounds SR 814.018

PBT: persistent, bioaccumulative, toxic

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer

vPvB: very persistent, very bioaccumulative

VOC: volatile organic compounds

ORRChem: Ordinance on the Reduction of Risks relating to the Use of Certain Particularly Dangerous Substances, Preparations and Articles SR 814.81

STEL: Short term exposure limit

VwVwS: Verwaltungsvorschrift wassergefährdende Stoffe

WPO: Waters Protection Ordinance

Key literature references and sources of data

Gestis Substance Database

List according to Annex 1.5 ORRChem (number 1 paragraph 2) published by the Federal Office for the Environment  
FOEN

Methods in accordance with article 9 of Regulation (EC) No 1272/2008 [CLP] applied for the evaluation of hazard information for substances and mixtures:

Additivity principle according to Annex 1, 3.3.3.3; Calculation methods according to Annex 1, 2.6.4.3.

Full text of Statements referred to under sections 2 – 15:

H225: Highly flammable liquid

H226: Flammable liquid

H315: Causes skin irritation

H318: Causes serious eye damage

H336: May cause drowsiness or dizziness

H412: Harmful to aquatic life with long lasting effects



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P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P243: Take precautionary measures against static discharge.

P280: Wear protective gloves/eye protection.

P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P332+313: If skin irritation occurs: Get medical advice/attention.

P403+233: Store in a well ventilated place. Keep container tightly closed.

## Further information

The information provided in this material safety data sheet correspond to our current state of knowledge and are in accordance national and EU legislation. The workplace conditions of the users are however not known to us and beyond our control. The user is responsible for the adherence to all legal obligations. The information in this data sheet describe the safety requirements of our products and do not constitute a guarantee of product properties.