1. Identification

Product identifier

DruckWege Type S Standard

Product code:

TDS

Recommended use of the chemical and restrictions on use

Use of the substance/mixture

3D Printing
resin

Uses advised against

Not for intraoral area.

Details of the supplier of the safety data sheet

Company name:	DruckWege GmbH		
Street:	Schulstr. 38		
Place:	D-53773 Hennef		
Telephone:	+49 2242 9185 137		
e-mail:	mail@druckwege.de		
Contact person:	Florian Reil / Anton Gillert	Telephone:	+49 2242 9185 137

Emergency phone number: Emergency telephone: +49 (0)89 41407483 (24 h, Munich, Germany)

2. Hazard(s) identification

Classification of the chemical

29 CFR Part 1910.1200

Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Dam. 1
Respiratory or skin sensitization: Skin Sens. 1

Label elements

29 CFR Part 1910.1200

Signal word: Danger

Pictograms:

Hazard statements

Causes skin irritation
May cause an allergic skin reaction
Causes serious eye damage

Precautionary statements

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin: Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center/doctor.
Dispose of waste according to applicable legislation.

Hazards not otherwise classified

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. People who suffer from skin sensitazion problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

3. Composition/information on ingredients

Mixtures

Hazardous components

CAS No	Components	Quantity
2123508-19-8	Hexane, 1,6-diisocyanato-, polymers with 2-hydroxyethyl acrylate-blocked 1,6-diisocyanatohexane homopolymer, 2-hydroxyethyl acrylate- and pentaerythritol triacrylate-blocked	48.02 %
13048-33-4	hexamethylene diacrylate; hexane-1,6-diol diacrylate	30.99 %
4986-89-4	pentaerythritol tetraacrylate	15.99 %
84434-11-7	Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate	4.99 %

4. First-aid measures

Description of first aid measures

General information

When in doubt or if symptoms are observed, get medical advice.

After inhalation

Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. Get medical advice/attention.

After contact with skin

Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. In case of skin reactions, consult a physician.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Do NOT induce vomiting. Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person or a person with cramps. Get medical advice/attention.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Specific hazards arising from the chemical

Non-flammable. In case of fire may be liberated: Gases/vapors, toxic.

Special protective equipment and precautions for fire-fighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Use water spray/stream to protect personnel and to cool endangered containers. Supress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Do not breathe gas/fume/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety. Evacuate area.

Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

Reference to other sections

Safe handling: see section 7
Personal protection equipment (PPE): see section 8
Disposal: see section 13

7. Handling and storage

Precautions for safe handling

Advice on safe handling

Provide adequate ventilation. Do not breathe gas/fume/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Further information on handling

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. People who suffer from skin sensitazion problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed and in a well-ventilated place.

Hints on joint storage

No information available.

8. Exposure controls/personal protection

Control parameters

Exposure limits

CAS No.	Substance	ppm	mg/m³	f/cc	Category	Origin
822-06-0	Hexamethylene diisocyanate	0.005	0.035		TWA (8 h)	REL
		0.005			TWA (8 h)	ACGIH-2019
		C 0.020	C 0.140		Ceiling	REL

Biological Exposure Indices (BEI-ACGIH)

CAS No.	Substance	Determinant	Value	Test material	Sampling time
822-06-0	1,6-HEXAMETHYLENE DIISOCYANATE	1,6-Hexamethylene diamine (with hydrolysis, creatinine)	15 µg/g	urine	End of shift

Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary . When using do not eat, drink, smoke, sniff. Do not breathe gas/fume/vapour/spray.

Contains isocyanates. May produce an allergic reaction. People who suffer from skin sensitazion problems , asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

Eye/face protection

Wear eye/face protection.

Hand protection

Wear suitable gloves.

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Use of protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	Liquid
Color:	various

Odor:	like: Acrylate
pH-Value:	not determined
Changes in the physical state	
Melting point/freezing point:	> 100 °C
Initial boiling point and boiling range:	not determined
Flash point:	> 110 °C
Flammability	
Solid:	not applicable
Gas:	not applicable
Explosive properties	
The product is not: Explosive.	
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Ignition temperature:	> 230 °C
Auto-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not determined
Oxidizing properties	
Not oxidising.	
Vapor pressure: (at 20 °C)	< 1 hPa
Density:	not determined
Water solubility:	poorly soluble
Solubility in other solvents	
not determined	
Partition coefficient:	not determined
Viscosity / dynamic:	not determined
Viscosity / kinematic:	not determined
Vapor density:	not determined
Evaporation rate:	not determined

Other information

Odor threshold: not determined

10. Stability and reactivity

Reactivity

No hazardous reaction when handled and stored according to provisions.

Chemical stability

Stability: Stable

The product is stable under storage at normal ambient temperatures.

Possibility of hazardous reactions

Hazardous reactions: Will not occur

No known hazardous reactions.

Conditions to avoid

No information available.

Incompatible materials

No information available.

Hazardous decomposition products

In case of fire may be liberated: Gases/vapors, toxic.

11. Toxicological information

Information on toxicological effects

Route(s) of Entry

inhalative, dermal, Eye contact

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Components				
	Exposure route	Dose	Species	Source	Method
13048-33-4	hexamethylene diacrylate; hexane-1,6-diol diacrylate				
	oral	LD50 5000 mg/kg	Rat	Manufacturer	
	dermal	LD50 3650 mg/kg	Rabbit	Manufacturer	OECD 402
4986-89-4	pentaerythritol tetraacrylate				
	oral	ATE 500 mg/kg			
84434-11-7	Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate				
	oral	LD50 > 5000 mg/kg	Rat	Manufacturer	OECD 401
	dermal	LD50 > 2000 mg/kg	Rat	Manufacturer	OECD 402

Irritation and corrosivity

Causes skin irritation

Causes serious eye damage

Sensitizing effects

May cause an allergic skin reaction (Hexane, 1,6-diisocyanato-, polymers with 2-hydroxyethyl acrylate-blocked 1,6-diisocyanatohexane homopolymer, 2-hydroxyethyl acrylate- and pentaerythritol triacrylate-blocked; hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate; Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate)

Contains isocyanates. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met.

Specific target organ toxicity (STOT) - repeated exposure

Based on available data, the classification criteria are not met.

Carcinogenicity (OSHA): No ingredient of this mixture is listed.

Carcinogenicity (IARC): No ingredient of this mixture is listed.

Carcinogenicity (NTP): No ingredient of this mixture is listed.

Aspiration hazard

Based on available data, the classification criteria are not met.

Further information

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. People who suffer from skin sensitazion problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

12. Ecological information

Ecotoxicity

Toxic to aquatic life with long lasting effects.

Persistence and degradability

The product has not been tested.

Bioaccumulative potential

The product has not been tested.

Mobility in soil

The product has not been tested.

Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

13. Disposal considerations

Waste treatment methods

Advice on disposal

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

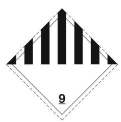
Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

14. Transport information

US DOT 49 CFR 172.101

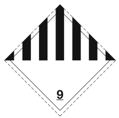
UN/ID number:	UN 3082
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate)
Transport hazard class(es):	9
Packing group:	III
Hazard label:	9



Marine transport (IMDG)

UN number:	UN 3082
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate)
Transport hazard class(es):	9
Packing group:	III

Hazard label: 9



Special Provisions: 274, 335, 969
Limited quantity: 5 L
Excepted quantity: E1
EmS: F-A, S-F

Air transport (ICAO-TI/IATA-DGR)

UN number: UN 3082

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate)

Transport hazard class(es): 9

Packing group: III

Hazard label: 9

Special Provisions: A97 A158 A197
Limited quantity Passenger: 30 kg G
Passenger LQ: Y964
Excepted quantity: E1

IATA-packing instructions - Passenger: 964
IATA-max. quantity - Passenger: 450 L
IATA-packing instructions - Cargo: 964
IATA-max. quantity - Cargo: 450 L

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: yes

Danger releasing substance: hexamethylene diacrylate; hexane-1,6-diol diacrylate; pentaerythritol tetraacrylate

Special precautions for user

No information available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

15. Regulatory information

U.S. Regulations

National Inventory TSCA

Hexane, 1,6-diisocyanato-, polymers with 2-hydroxyethyl acrylate-blocked 1,6-diisocyanatohexane homopolymer, 2-hydroxyethyl acrylate- and pentaerythritol triacrylate-blocked: No.
hexamethylene diacrylate; hexane-1,6-diol diacrylate: Yes.
pentaerythritol tetraacrylate: Yes.
Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate: No

National regulatory information

SARA Section 304 CERCLA:

Hexamethylene-1,6-diisocyanate (822-06-0): Reportable quantity = 100 (45.4) lbs. (kg)

SARA Section 311/312 Hazards:

Hexane, 1,6-diisocyanato-, polymers with 2-hydroxyethyl acrylate-blocked 1,6-diisocyanatohexane homopolymer, 2-hydroxyethyl acrylate- and pentaerythritol triacrylate-blocked (2123508-19-8): Immediate (acute) health hazard

hexamethylene diacrylate; hexane-1,6-diol diacrylate (13048-33-4): Immediate (acute) health hazard

pentaerythritol tetraacrylate (4986-89-4): Immediate (acute) health hazard

Ethyl phenyl(2,4,6-trimethylbenzoyl)phosphinate (84434-11-7): Immediate (acute) health hazard

SARA Section 313 Toxic release inventory:

Hexamethylene-1,6-diisocyanate (822-06-0): De minimis limit = 1.0 %, Reportable threshold = Standard

Clean Air Act Section 112(b):

Hexamethylene-1,6-diisocyanate (822-06-0)

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)

This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

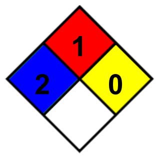
16. Other information

Hazardous Materials Information Label (HMIS)

Health:	*2
Flammability:	1
Physical Hazard:	0

NFPA Hazard Ratings

Health:	2
Flammability:	1
Reactivity:	0
Unique Hazard:	



Revision date:	24.10.2019
Revision No:	1,0

Abbreviations and acronyms

ACGIH: American Conference of Governmental Industrial Hygienists
CFR: Code of Federal Regulations
DOT: Department of Transportation
ICAO: International Civil Aviation Organization
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IARC: International Agency for Research on Cancer
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CAS: Chemical Abstracts Service
NFPA: National Fire Protection Association
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: permissible exposure limit
REL: recommended exposure limit
SARA: Superfund Amendments and Reauthorization Act
STEL: Short-term exposure limit
TSCA: Toxic Substances Control Act
TWA: time-weighted average
TI: Technical Instructions
DGR: Dangerous Goods Regulations
UN: United Nations
ATE: Acute toxicity estimate

LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
VOC: Volatile Organic Compounds

Other data

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights. The receiver of our product is singulary responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)