

SAFETY DATA SHEET

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II - Europe



Trade name: TEPEX® dynalite/optilite
Product code.: 108/208/408

Version: 3 Last Change: 04.02.2019

SECTION 1: Product and Company Identification

1.1 Product identifier

Product name : TEPEX® dynalite 108 / TEPEX® optilite 108
TEPEX® dynalite 208 / TEPEX® optilite 208
TEPEX® dynalite 408 / TEPEX® optilite 408

1.2 Relevant identified uses of the product and uses advised against

Suitable uses : Production of fiber reinforced plastic composite parts

1.3 Details of the supplier of the safety data sheet

Supplier : Bond-Laminates GmbH
Am Patbergschen Dorn 11
59929 Brilon, Deutschland
Phone: +49 2961 96628 0
E-Mail: info@bond-laminates.de

1.4 Emergency telephone number : +49 2961 96628 519

Product

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

SECTION 2: Composition/Information on Ingredients

Product definition (REACH) : Product
Thermoplastic polyurethane (CAS# 75701-44-9), reinforced with continuous fibers.
Glass fiber filament of diameter > 3 microns; Principally silicon, aluminium, calcium, boron and magnesium oxides, at a vitreous amorphous state (Glass fibers); CAS# 65997-17-3; Mass fraction 0-70%
Synthetic graphite fiber (Carbon fibers); CAS# 7440-44-0; Mass fraction 0-70%
Reinforcing fibers may be treated with a hard coating (sizing, finish);
Mass fraction < 2%

Within the present knowledge of the supplier, this product does not contain any hazardous ingredients in quantities requiring reporting in this section, in accordance with EU or national regulations.

SECTION 3: Hazards Identification

2.1 Classification of the substance or mixture

Classification according to regulation (EC) No. 1272/2008 [CLP/GHS] and regulation 1999/45/EG [ZubereitungsDirective] : not classified

2.2 Label elements

Hazard pictograms : -
Signal words : No signal word
Hazard statements : No hazards for humans and the environment when properly handled.

2.3 Other hazards

Possibility of smoke or release gaseous decomposition products at high temperatures above recommended processing temperatures. Prolonged exposure with smoke and/or decomposition products may cause temporary

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headaches, irritation of the respiratory system, coughing or shortness of breath. Possible dust formation and uncovering of fibers that are fully embedded in polymer in the product's delivery state during mechanical processing of the product, e.g. milling, grinding, sawing, etc.

Possible hazards resulting from dust formation:

Electrically conductive fibers (carbon fibers, metallized fibers) can cause short circuits in electrical appliances. Electrically insulation fibers (glass fibers, aramid fibers) can cause static electricity. Potential fire and/or explosion hazard if ignition source is present.

See Section 11 for more detailed information on health effects and symptoms cause by exposition to dust.

SECTION 4: First-Aid Measures

4.1 Description of first aid measures

- General** : Ensure self-protection. Remove affected persons from danger zone, lay down, keep warm and cover. Do not leave affected persons unattended.
- Inhalation** : If dust and/or smoke is inhaled and respiratory irritation occurs, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
- Skin contact** : CONTACT WITH THE HOT MELT: Cooling immediately with plenty of water. Do not remove product crusts which may have formed neither forcibly nor by applying any solvents to the skin involved. In order to obtain medical care for possible burns and for a smooth cleansing of the skin, seek medical advice immediately.
CONTACT WITH DUST: Immediately wash the affected areas with mild soap and tepid or cold water. Do not rub or scratch irritated areas to avoid fibers penetrating the skin and further irritation. Remove contaminated clothing. If irritation persists or dermatitis develops, seek medical attention.
- Eye contact** : Immediately flush with plenty of water for at least 15 minutes. In any case contact an ophthalmologist.
- Ingestion** : Not an expected route of exposure. If exposure does occur, check for intestinal obstruction for several days. If exposure to dust or fiber particles occurs immediately and repeatedly flush with water. DO NOT INDUCE VOMITING. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms

4.3 Indication of any immediate medical attention and special treatment needed

See Section 11 for more detailed information on health effects and symptoms

No special recommendations. Seek medical attention when in doubt. Treat symptomatically.

SECTION 5: Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam, dry chemical or CO₂.

Unsuitable extinguishing media : Water, if the fire is associated with an electrical short circuit.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance : Carbon fiber is electrically conductive and a danger for unprotected electrical equipment in case of fire. An accumulation of fly in sufficient concentrations could result in an explosive risk

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Hazardous combustion products : Complete or incomplete decomposition by combustion - under influence of air and temperature - may lead to the creation of carbon oxides, nitrogen oxides and other substances of low molecular weight. Which substances are created is depending on other materials present in the fire and the nature of the fire itself.

5.3 Advice for firefighters

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident of there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures : Molten surface: where there is a risk of exothermal decomposition as a result of overheating (rise in temperature, formation of fumes or smoke) cool the melt in a water bath.
Dust: Avoid direct contact with dust.

6.2 Environmental precautions : No special measures required.

6.3 Methods and materials for containment and cleaning up

Small spill : Take up mechanically. Dispose of product and cleaning materials according to local regulations. Carbon fiber is electrically conductive and may cause short circuits in electrical equipment. Avoid direct contact with dust.

Large spill : Take up mechanically

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and Storage

7.1 Precautions for safe handling : Provided good ventilation and/or local exhaust systems are used, the Occupational Exposure Limit(s) stated in Section 8 should not be exceeded. Dust must be removed by effective extraction. During mechanical processing avoid formation of dust. Take measures against electrostatic charging. Avoid inhaling vapors and/or dust. Grease skin. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. When using the product do not eat, drink or smoke.
Most thermoplastic urethanes are processed at melt temperatures in a range of 177-232°C; processing Tepex®-products may require higher temperatures. Heating the material above the allowed processing temperature may lead to the release of dangerous decomposition products (see Section 10). The main gases that are expected to be released during normal melt processing are water vapor and carbon dioxide. Other traces of volatile organic compounds may also be released.
Do not sterilize products made from thermoplastic urethane with steam. Methylendianilin may be created.

Recommended maximum handling temperature for the material: 221°C

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7.2 Conditions for safe storage, including any incompatibilities : Keep sealed against contamination from water or dirt. (temperature < 30 °C (86 °F), humidity < 75 %). Do not expose to direct sunlight.

Germany - Storage Category : 11

7.3 Specific end uses(s)

Recommendations : not available

Industrial sector specific solutions : not available

SECTION 8: Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limit values : Not available when used appropriately.
When dust is created:
OSHA 15mg/m³ (all dust), 5mg/m³ (breathable dust)
ACGIH 5mg/m³ TWA (respirable fraction),
1 fiber/cm³ (breathable fraction)
Germany (TRGS900): MAK 3mg/m³ TWA (respirable fraction),
0,25 fiber/ml (breathable fraction)
Observe TRGS 521 „Faserstäube“.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

8.2 Exposure controls

Risk management measures

Occupational exposure controls

Technical measures : Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protection measures

Respiratory protection : In case of dust formation use respiratory equipment with filter type particle filter P1 according to DIN EN 143.

Hand protection : Protective gloves of leather. Heat insulating gloves when handling heated product. Replace contaminated or damaged gloves.

Eye protection : Protective goggles with side shield or tightly fitting protective goggles

Skin protection : Skin covering working clothes; wear dust-proof overalls if large quantities of dust are generated.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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Environmental exposure controls

Technical measures : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

General information

Appearance

Physical state : Solid (flat semi-finished product)
Color : Diverse
Odor : Odorless to weak characteristic

Important health, safety and environmental information

Melting point : Thermoplastic polyurethane: 110-180°C (230-355°F)
Glass fiber: >650°C (1200°F) (softening, ASTM C-338)
Carbon fiber: >3500°C (6300°F)
Flash point : Not applicable
Density : 1.3-2.1 g/cm³ (depending on composition)
Ignition temperature : Not available
Decomposition temperature : Thermoplastic polyurethane: >250°C (480°F)
Glass fiber sizing: >300°C (570°F)
Carbon fiber: 650°C (1200°F) (air)
Not applicable/available for other components
PH value : Not applicable
Explosion hazard : Not available
Solubility in water : Thermoplastic polyurethane is insoluble
Certain glass fiber products may disperse in water.
Glass fiber sizing may be soluble in water.
Not applicable/available for other components
Oxidizing properties : Not applicable/available

9.2 Other information

No additional information.

SECTION 10: Stability and Reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability : The product is stable.
10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid : In the case of dusty organic products the possibility of a dust explosion should always be considered. No hazardous reactions when used as directed.
10.5 Incompatible materials : No specific data.

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10.6 Hazardous decomposition products : Caused by smoldering and incomplete combustion toxic fumes mainly consisting of CO and CO₂, Nitrogen, silica, water, ammonium, hydrogen chloride, traces of hydrocarbons and other unknown substances may be developed. Degradation products of the polymers and their additives may also be formed, depending on other materials present in the fire and the nature of the fire itself. Avoid inhalation.

SECTION 11: Toxicological Information

11.1 Information on toxicological effects

The World Health Organization defines respirable fibers as fibers with diameter (d)<3µm, length (l)>5µm and l/d-ratio ≥3. For all fibers contained in this product d>4µm applies. Therefore, all fibers contained in this product are not classified as hazardous substance(s) according to regulation (EC) No. 1272/2008 (CLP). No indication exists that the fibers used in this product have any mutagenic, genotoxic or carcinogenic effects. Highly mechanically treated or processed product can create dust that contains very small fractions of respirable fiber particles. Measured concentrations of fiber-like respirable material in air at places where fiber materials are heavily processed were very low and significantly below any Occupational Exposure Limits. Repeated or prolonged exposure to respirable fibers can cause fibrosis, lung cancer and mesothelial sarcoma. In its delivery form this product exclusively contains fibers that are spatially fixated and not respirable or breathable, because they are completely enclosed with solid polymer within a flat sheet. Excessive exposure to steam or mist may lead to dizziness, headache, nausea and/or influenza-like symptoms. Persons with sensitive respiratory organs (e.g. asthmatics) may react to the steam. Based on the existing data the products is not listed for acute toxicity.

11.2 Further Information

During mechanical processing or machining single filaments of fiber particles with potential for temporary irritations in mouth, nose and throat may be released. Contact with skin or eyes can cause itching or temporary irritation. Inhalation can cause temporary mechanical irritation of the respiratory system. Preexisting conditions, e.g. breathing difficulties or skin sensibility can get worse due to contact with dust/particles created during machining/cutting/etc. of the product. Inhaling fumes created by thermal processing can cause burning sensation or pain in nose and throat and/or watering and burning eyes.

SECTION 12: Ecological Information

12.1 Toxicity

Conclusion/Summary : Not available

12.2 Persistence and degradability

Conclusion/Summary : Not available

12.3 Bio accumulative potential

Not available

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available

Mobility : Not available

12.5 Results of PBT and vPvB assessment

PBT : Not applicable

vPvB : Not applicable

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12.5 Other adverse effects

Other adverse effects : Not available
AOX : Not available

The product is practically insoluble in water. In view of its consistency and insolubility in water, no ecological problems are to be expected if the product is properly handled. This product is not readily biodegradable.

SECTION 13: Disposal Considerations

13.1 Waste treatment methods

Product

Methods of disposal : The product is suitable for mechanical recycling. After appropriate treatment it can be remelted and reprocessed into new molded articles. Mechanical recycling is only possible if the material has been selectively retrieved and carefully segregated according to type. If the product contains carbon fiber, the carbon components can be recycled. Glass fiber components are not suited for thermal recycling. May only be transported to suitable incinerator with reduced non-air emissions observing local official regulations. May be disposed of together with household refuse if local official regulations are observed.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

13.2 Waste Code according to AVV : According to European Waste Catalogue (EWC) waste codes are depending on the application and should be defined by the consumer of the product.

SECTION 14: Transport Information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	-	-	-	-
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)/Marks	-	-	-	-
14.4 Packaging group	-	-	-	-
14.5 Environmental hazards	No.	No.	No	No
14.6 Special precautions for user/Additional information	Not regulated.	Not regulated.	Not regulated.	Not regulated.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available

Hazard notes : Not dangerous cargo.
Keep dry.

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SECTION 15: Regulatory Information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Substances of very high concern

None present or none present in regulated amounts.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Chemical denomination: Stannane, trix(dodecylthio)methyl-
EG-No.: 257-696-6
Concentration: <0,1%

Other EU regulations

Seveso II Directive

This product is not controlled under the Seveso II Directive

Regulation (EG) Nr. 2037/2000:

None present or none present in regulated amounts.

REGULATION (EG) Nr. 850/2004:

None present or none present in regulated amounts.

Regulation (EG) Nr. 689/2008:

None present or none present in regulated amounts.

Directive 2004/37/EG:

None present or none present in regulated amounts.

Directive 92/85/EWG:

None present or none present in regulated amounts.

Directive 96/82/EG (Seveso III):

None present or none present in regulated amounts.

REGULATION (EG) Nr. 166/2006:

Chemical denomination: Stannane, trix(dodecylthio)methyl-
EG-No.: 257-696-6
Concentration: <0,1%

Directive 98/24/EU:

None present or none present in regulated amounts.

Water pollution class : The product is not water-polluting

15.2 Chemical Safety Assessment : Not applicable

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SECTION 16: Other Information

Do not use this product in medical applications involving permanent implantation in human body.

Abbreviations and acronyms

- : ATE = Acute Toxicity Estimate
- : CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- : DNEL = Derived No Effect Level
- : EUH statement = CLP-specific Hazard statement
- : PBT = Persistent, Bio accumulative and Toxic
- : PNEC = Predicted No Effect Concentration
- : RRN = REACH Registration Number
- : vPvB = Very Persistent and Very Bio accumulative

History

Date of issue : 04.02.2019
Date of previous issue : 07.12.2017
Version : 3

Notice to reader

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet and its Annex [if required according to Regulation (EC) 1907/2006 (REACH)] is to describe the products in terms of their safety requirements. The given details do not imply any guarantee concerning the composition, properties or performance.