

SAFETY DATA SHEET



UHMWPE fibers from DSM Dyneema: 3G10 / 3G12 series

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : UHMWPE fibers from DSM Dyneema: 3G10 / 3G12 series
 Internal code : WW39927
 Chemical product name : Polyethylene (ultra-high molecular weight) Fibres.
 Chemical formula : Not applicable.

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

Recommended use : Textiles.

1.3 Details of the supplier of the safety data sheet

Supplier : DSM Dyneema BV
 PO Box 1163, 6160 BD Geleen
 Mauritslaan 49, 6129 EL Urmond
 The Netherlands
 telephone + 31-(0)46-476 79 99
 E-mail: info.dyneema@dsm.com
 website <http://www.dyneema.com>
 e-mail address of person responsible for this SDS : Info.Worldwise@dsm.com

1.4 Emergency telephone number

Emergency telephone number : Netherlands: +31 46 476 55 55
 Fax: +31 46 476 64 40

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture
Classification according to Directive 1999/45/EC [DPD]
 The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.
 Classification : Not classified.
 Physical/chemical hazards : Combustible.
 Human health hazards : Based on the available data of this product no hazardous properties are known.
 Environmental hazards : Based on the available data of this product no hazardous properties are known.

2.2 Label elements

Hazard symbol or symbols :
 Indication of danger :
 : According to EU Directives 67/548/EEC and 1999/45/EC this product does not require labelling with symbols and/or R-phrases.
 Safety phrases : Not applicable.
 Hazardous ingredients :

2.3 Other hazards

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

Substance/mixture : Mixture

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.



SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Rinse with plenty of running water. Get medical attention if symptoms occur.
- Inhalation** : Not applicable.
- Skin contact** : Wash with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : If swallowed, rinse mouth with water (only if the person is conscious). Get medical attention if symptoms occur.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : May cause eye irritation. (redness).
- Inhalation** : Not applicable.
- Skin contact** : Entanglement with this high strength fibre can severely cut or sever fingers. Do not touch moving threadlines. This product contains a low percentage of engineered mineral fibers, of which a small part can be released from the product during processing and lead to deposit formation. They may cause mechanical irritation to the eyes, skin and respiratory system. Various studies indicate there is no risk of chronic health hazards.
- Ingestion** : There is no known acute effect after over-exposure to this product.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Small fire

- Suitable** : Use dry chemical or CO₂.

Large fire

- Suitable** : Use water, foam or dry chemical powder.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : No specific hazard.
- Hazardous combustion products** : In case of fire, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, (dense) black smoke, aldehydes, organic acids.

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : No special measures required.
- Special protective equipment for fire-fighters** : Wear suitable protective clothing. Self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Do not touch or walk through spilled material.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also Section 8 for additional information on hygiene measures.

- 6.2 Environmental precautions** : No special measures required.



6.3 Methods and materials for containment and cleaning up

- Small spill** : Vacuum or sweep up material and place in a designated, labelled waste container. Clean up affected area with a large amount of water.
- Large spill** : Vacuum or sweep up material and place in a designated, labelled waste container. Recycle, if possible. Prevent formation of dust clouds. Clean up affected area with a large amount of water.

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

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

- Protective measures** : Use with adequate ventilation.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

- : Store in a fireproof location. Keep away from incompatible materials and avoid specific conditions (See section 10). Keep away from heat and direct sunlight. Keep the box closed.

7.3 Specific end use(s)

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

- Remarks** : Entanglement with this high strength fibre can severely cut or sever fingers. Do not touch moving threadlines. Never stack pallets and boxes more than two high to prevent the risk of them falling over. Take precautionary measures against electrostatic discharges.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker or exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

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 monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

- Appropriate engineering controls** : Use only with adequate ventilation.

Individual protection measures

- Hygiene measures** : When using do not eat, drink or smoke. Wash hands after handling compounds and before eating, smoking and using the lavatory and at the end of the day.
- Eye/face protection** : Safety glasses with side shields.

Hand protection	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Skin and body	: Wear work clothing with long sleeves.
Respiratory protection	: No special protection is required. In case of insufficient ventilation, wear suitable respiratory equipment.
Environmental exposure controls	: 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.
Remarks	: The fibre is treated with a spin finish which contains components that may cause irritation to eyes and skin after prolonged contact.

This product contains a low percentage of engineered mineral fibers, of which a small part can be released from the product during processing and lead to deposit formation. They may cause mechanical irritation to the eyes, skin and respiratory system. Various studies indicate there is no risk of chronic health hazards.

Advice on personal protection is applicable for high exposure levels. Select proper personal protection based on a risk assessment of the actual exposure situation.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: Solid. [Fibres.]
Colour	: White to off-white.
Odour	: Odourless.
Odour threshold	: Not available.
pH	: Not available.
Melting point/freezing point	: 144 to 152 °C
Initial boiling point and boiling range	: Decomposes. >300 °C
Softening range	: Not available.
Flash point	: >400 °C
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Burning time	: Not available.
Burning rate	: Not available.
Upper/lower flammability or explosive limits	: Not available.
Vapour pressure	: Not available.
Vapour density	: Not available.
Relative density	: Not available.
Density (g/cm³)	: 1.01 g/cm ³
Bulk density	: Not available.
Solubility	: Insoluble in the following materials: cold water.
Solubility in water	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: >300°C
Viscosity	: Not available.
Explosive properties	: Not available.
Oxidising properties	: Not available.

9.2 Other 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	: Stable under recommended storage and handling conditions (see Section 7).
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.



10.4 Conditions to avoid : Keep away from heat, sparks and flame. Temperatures above the melting point.

10.5 Incompatible materials : Strong oxidising materials

10.6 Hazardous decomposition products : No specific data.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Conclusion/Summary : Not available.

Acute toxicity estimates

Not available.

Irritation/Corrosion

Conclusion/Summary

Eyes : Not available.

Skin : Not available.

Respiratory : Not available.

Sensitisation

Conclusion/Summary

Skin : Not available.

Respiratory : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Remarks : UHMWPE filaments from DSM Dyneema were tested according to the draft protocol ECB/TM/1(00) rev.2, Draft-4, Length weighted geometric mean diameter of fibres. The length weighted geometric mean diameter, when adjusted for two standard errors, was in the range 17.93 and 18.32 micrometers. The observed diameter of the fibres is too large to produce respirable fibres. So UHMWPE fibres from DSM Dyneema will never reach the deeper part of the respiratory tract and fibrogenic or carcinogenic effects on the lung will not occur.

This product contains a low percentage of engineered mineral fibers, of which a small part can be released from the product during processing and lead to deposit formation. They may cause



mechanical irritation to the eyes, skin and respiratory system. Various studies indicate there is no risk of chronic health hazards.

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Polyethylene (ultra-high molecular weight) Fibres.	-	-	Not readily

12.3 Bioaccumulative potential

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.

12.6 Other adverse effects : No known significant effects or critical hazards.

Remarks : This product is not biodegradable and not toxic to aquatic organisms.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : Waste must be disposed of in accordance with national and local environmental regulations.

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 minimised 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.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.



Additional information	-	-	-	-

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

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

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 authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

15.2 Chemical Safety Assessment : No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

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

Not classified.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements : Not applicable.

Full text of classifications [CLP/GHS] : Not applicable.

Full text of abbreviated R phrases : Not applicable.

Full text of classifications [DSD/DPD] : Not applicable.

Alterations compared to the previous version : Alterations compared to the previous version are marked with a little (blue) triangle.

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

Sources of key data : Literature data and/or investigation reports are available through the manufacturer.

Internal code : WW39927

Training advice : Before handling this substance/preparation, the personnel involved should be instructed by means of this safety data sheet.

Notice to reader



The information contained in the Safety Data Sheet is based on our data available on the date of publication. The information is intended to aid the user in controlling the handling risks; it is not to be construed as a warranty or specification of the product quality. The information may not be or may not altogether be applicable to combinations of the product with other substances or to particular applications.

The user is responsible for ensuring that appropriate precautions are taken and for satisfying themselves that the data are suitable and sufficient for the product's intended purpose. In case of any unclarity we advise consulting the supplier or an expert.

History

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