PVA-FILAMENT

SAFETY DATA SHEET

REDLINE FILAMENT

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

1.1 Product identifier

Trade name or designation of the mixture	PVA
Registration number	-
Synonyms	None
Issue date	16.05.2019
Version number	01

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

Identified uses	3D printer filament
Uses advised against	None known

1.3 Details of the supplier of the safety data sheet

Supplier	
Company name	REDLINE FILAMENT GmbH
Adress	Pleißeweg 15, 41469 Neuss, Germany
Phone	+49(0)177 62 77 918
Contact person	M. Eng. Robert Banse
Emergency phone number	+49(0)30 18 41 20

Section 2: Hazards identification

2.1 Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary	Not available

2.2 Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms	None
Signal word	None
Hazard statements	The mixture does not meet the criteria for classification

Precautionary statements

Prevention	Not available
Response	Not available
Storage	Not available
Disposal	Not available
Supplemental label information	None

2.3 Other hazards — Not a PBT or vPvB substance or mixture

Section 3: Composition/information on ingredients

3.1 Mixtures

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Polyvinyl alcohol compound	80 - < 90	Proprietary	-	-	
methanol (impurity)	< 1	67-56-1 200-659-6		603-001-00-X	#
Classification:	Flam. Liq. 2;H225, Acute Tox. 3;H301, Acute Tox. 3;H311, Acute Tox. 3;H331, STOT SE 1;H370				
Other components below reportable levels	10 - < 20				

Composition comments: The full text for all H-statements is displayed in section 16

Section 4: First aid measures

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1 Description of first aid measures

Inhalation: Not likely, due to the form of the product. If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

Skin contact: If burned by contact with hot material, cool molten material adhering to skin as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn. Do not peel polymer from the skin.

Eye contact: Not likely, due to the form of the product. If hot product contacts eye, flush with water for at least 15 minutes and seek medical attention immediately.

Ingestion: Not likely, due to the form of the product.

4.2 Most important symptoms and effects, both acute and delayed: Exposure may cause temporary irritation, redness, or discomfort.

4.3 Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

Section 5: Firefighting measures

General fire hazards: No unusual fire or explosion hazards noted.

5.1 Extinguishing media

Suitable extinguishing media: Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

5.2 Special hazards arising from the substance or mixture	During fire, gases hazardous to health may be formed.

5.3 Advice for firefighters

Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.
6.2 Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
6.3 Methods and material for containment and cleaning up	Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13 of the SDS.
6.4 Reference to other sections	For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

Section 7: Handling and storage

7.1 Precautions for safe handling	Avoid prolonged exposure. Observe good industrial hygiene practices.
7.2 Conditions for safe storage, including any incompatibilities	Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).
7.3 Specific end use(s)	Not available.

Section 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	MAK	260 mg/m³
		200 ppm
	STEL	1040 mg/m³
		800 ppm

Belgium. Exposure Limit Values.

Components	Type	Value

methanol (impurity) (CAS 67-56-1)	STEL	333 mg/m³
		250 ppm
	TWA	266 mg/m³
		200 ppm

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	MAC	260 mg/m³
		200 ppm

Czech Republic. OELs. Government Decree 361

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	Ceiling	1000 mg/m3
	TWA	250 mg/m³

Denmark. Exposure Limit Values

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TLV	260 mg/m³
		200 ppm

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	STEL	350 mg/m³
		250 ppm
	TWA	250 mg/m³
		200 ppm

Finland. Workplace Exposure Limits

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	STEL	330 mg/m³
		250 ppm
	TWA	270 mg/m³
		200 ppm

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	VLE	1300 mg/m³
Regulatory status:	Indicative limit (VL)	1000 ppm
Regulatory status:	Indicative limit (VL) VME	260 mg/m³
Regulatory status:	Regulatory binding (VRC)	200 ppm
Regulatory status:	Regulatory binding (VRC)	200 ppm

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	130 mg/m³
		100 ppm

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	AGW	270 mg/m³
		200 ppm

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	STEL	325 mg/m³
		250 ppm
	TWA	260 mg/m³
		200 ppm

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Ireland. Occupational Exposure Limits

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Italy. Occupational Exposure Limits

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Components	Type	Value

methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Netherlands. OELs (binding)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	133 mg/m³

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TLV	130 mg/m³
		100 ppm

Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	STEL	300 mg/m³
		100 mg/m³

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

methanol (impurity) (CAS 67-56-1)	STEL	250 mg/m³
	TWA	200 ppm

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Spain. Occupational Exposure Limits

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	266 mg/m³
		200 ppm

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	STEL	350 mg/m³
		250 ppm
	TWA	250 mg/m³

		200 ppm

Switzerland. SUVA Limit values at the workplace

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	STEL	1040 mg/m³
		800 ppm
	TWA	260 mg/m³
		200 ppm

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	STEL	333 mg/m³
		250 ppm
	TWA	266 mg/m³
		200 ppm

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Components	Type	Value
methanol (impurity) (CAS 67-56-1)	TWA	260 mg/m³
		200 ppm

Biological limit values

Croatia. BLV. Dangerous Substance Exposure Limit Values at Workplace, Annexes 4 (as amended)

Components	Value	Determinant	Specimen	Sampling Time
methanol (impurity) (CAS 67-56-1)	7 mg/g	Methanol	Creatinine in urine	*
	24,7 mmol/mol	Methanol	Creatinine in urine	*

* - For sampling details, please see the source document

Czech Republic. Limit Values for Indictators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.

Components	Value	Determinant	Specimen	Sampling Time
methanol (impurity) (CAS 67-56-1)	15 mg/l	Methanol	Urine	*
	0,47 mmol/mol	Methanol	Urine	*

* - For sampling details, please see the source document

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)

Components	Value	Determinant	Specimen	Sampling Time
methanol (impurity) (CAS 67-56-1)	15 mg/l	Methanol	Urine	*

* - For sampling details, please see the source document

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling Time
methanol (impurity) (CAS 67-56-1)	30 mg/l	Methanol	Urine	*

* - For sampling details, please see the source document

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling Time
methanol (impurity) (CAS 67-56-1)	20 mg/g	Methanol	Creatinine in urine	*
	30 mg/l	Methanol	Urine	*

* - For sampling details, please see the source document

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling Time
methanol (impurity) (CAS 67-56-1)	15 mg/l	Methanol	Urine	*

* - For sampling details, please see the source document

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Determinant	Specimen	Sampling Time
methanol (impurity) (CAS 67-56-1)	30 mg/l	Methanol	Urine	*

* - For sampling details, please see the source document

Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no effect levels (DNELs)	Not available
Predicted no effect concentrations (PNECs)	Not available

8.2 Exposure controls

Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information	Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Wear safety glasses with side shields (or goggles).

Skin protection

- Hand protection	Wear appropriate chemical resistant gloves.
- Other	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants

Environmental exposure controls	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Solid.
Form	filament
Colour	Color depends on product specification
Odour	Slight.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	150 - 230 °C (302 - 446 °F)
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	520 °C (968 °F)
Decomposition temperature	Not available.
Viscosity	Not available.

Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2 Other information

Density	1,19 - 1,31 g/cm³

Section 10: Stability and reactivity

10.1 Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2 Chemical stability	Material is stable under normal conditions.
10.3 Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4 Conditions to avoid	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.
10.5 Incompatible materials	Strong oxidising agents.
10.6 Hazardous decomposition products	No hazardous decomposition products are known.

Section 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	Based on available data, the classification criteria are not met.
Skin contact	Based on available data, the classification criteria are not met.
Eye contact	Based on available data, the classification criteria are not met.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms	Exposure may cause temporary irritation, redness, or discomfort.

11.1 Information on toxicological effects

Acute toxicity	Not known.
Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.
Respiratory sensitisation	Based on available data, the classification criteria are not met.
Skin sensitisation	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Based on available data, the classification criteria are not met.
Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)	Not listed.
Reproductive toxicity	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met.
Mixture versus substance information	No information available.
Other information	This product has no known adverse effect on human health.

Section 12: Ecological information

12.1 Toxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
12.2 Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
12.3 Bioaccumulative potential Bioconcentration factor (BCF)	Not available.
12.4 Mobility in soil	No data available.
12.5 Results of PBT and vPvB assessment	Not a PBT or vPvB substance or mixture.
12.6 Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13: Disposal considerations

13.1 Waste treatment methods

Residual waste	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Special precautions	Dispose in accordance with all applicable regulations.

Section 14: Transport information

ADR	14.1. - 14.6.: Not regulated as dangerous goods.
RID	14.1. - 14.6.: Not regulated as dangerous goods.
ADN	14.1. - 14.6.: Not regulated as dangerous goods.
IATA	14.1. - 14.6.: Not regulated as dangerous goods.
IMDG	14.1. - 14.6.: Not regulated as dangerous goods.

14.1 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

Section 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended	Not listed.
Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended	Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended	Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended	Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended	Not listed.
Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended	Not listed.
Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended	Not listed.
Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA	Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended	Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended	Not listed.
Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.	Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended	Not listed.
Other regulations	The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.
National regulations	Follow national regulation on the protection of workers from the risks of exposure to carcinogens and mutagens at work, in accordance with Directive 2004/37/EC.

15.2 Chemical safety assessment	No Chemical Safety Assessment has been carried out.

Section 16: Other information

List of abbreviations	Not available.
References	Not available.

Information on evaluation method leading to the classification of mixture	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.	
Full text of any H-statements not written out in full under Sections 2 to 15	H225	Highly flammable liquid and vapour.
	H301	Toxic if swallowed.
	H311	Toxic in contact with skin.
	H331	Toxic if inhaled.
	H370	Causes damage to organs.
Revision information	None.	
Training information	Follow training instructions when handling this material.	
Disclaimer	This safety data sheet (SDS) is issued based on the latest reference, data etc currently available. The information in this SDS has been carefully assessed, but no guarantee is given for its accuracy. We cannot anticipate all conditions under which this product may be used. It is the user's responsibility to take appropriate safety measures for handling.	