



SECTION 1: Description of the material or mixture and the company

1.1 Product identifier

Product Name: iglidur® I180- PF

1.2 Relevant identified use of material or mixture and uses which should be avoided

Relevant identified use: plastic filament respectively moulded plastic part for 3D printing

Uses which should be avoided: direct contact with food

1.3 Details on supplier who provides the safety data sheet

Company: igus® GmbH
 Spicher Str. 1a
 D-51147 Köln

Telephone: +49 2203/9649-0
Fax: +49 2203/9649-222
E-mail: info@igus.de

1.4 Emergency phone number

Emergency phone number: +49 551/19240 (Poison Information Center North)

SECTION 2: Possible risks

2.1 Classification of material or mixture

Classification according to ordinance (EC) No. 1272/2008

The product is not classified as dangerous.

2.2 Labelling elements

The product does not require labelling.

2.3 Other risks

No special risks are known if regulations/notes on proper storage and handling are respected.

In case of secondary processing of the product appropriate prevention measures need to be taken. If dusts, fumes or mists occur during machining, use appropriate ventilation to keep the effects of air pollutants below the limit values. Dust can cause mechanical irritations.

In case of unintended release, remove mechanically in order to prevent the risk of slipping or tripping. Keep away from open fire since the product is combustible.

The thermal decomposition products of this polymer can cause polymer fever with flu-like symptoms in humans, especially after smoking contaminated tobacco products.

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SECTION 3: Composition / information about components

The product is based on a thermoplastic polymer compound with additives and fillers.

3.1 Substances

Not applicable.

3.2 Mixtures

Not applicable.

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General information: The first-aid workers must protect themselves. Move affected persons away from the danger zone. Let them rest. Do not leave affected person unattended.

Inhalation: After inhaling decomposition products, move affected person into the fresh air and position in such a way that breathing is facilitated. Seek medical treatment if complaints occur.

Skin contact: Irritations or injuries might occur due to mechanical contact. Rinse affected skin area with a lot of water. If symptoms occur, seek medical attention. Heated moulded plastic parts can cause thermal burns which could lead to pain, redness and the formation of blisters. Immediately cool affected skin areas with cold water after contact with the molten polymer. Seek immediate medical attention. Do not peel off the cooled product from the skin.

Eye contact: irritations or injuries might occur due to mechanical contact. In the case of irritations caused by dust or combustion products rinse the affected eyes for several minutes with clean water or eyewash solution while keeping the eyelids pulled open. Check for contact lenses and remove them if applicable. Seek medical attention if complaints persist.

Ingestion: Risk of suffocation due to small particles. Seek medical advice. Do not induce vomiting.

4.2 Important acute and delayed symptoms and effects

Inhalation: No special effects or risks are known.

Skin contact: No special effects or risks are known.

Eye contact: No special effects or risks are known.

Ingestion: No special effects or risks are known.

4.3 Information on immediate medical assistance or special treatment

Information for the medical doctor: Treat symptomatically.

Special treatment: No special treatment.

SECTION 5: Fire-fighting measures

The product is combustible.

5.1 Fire-extinguishing agents

Suitable fire-extinguishing agents: use water spray jet, extinguishing powder, alcohol-resistant foam or carbon dioxide

Unsuitable fire-extinguishing agents: water with full jet

5.2 Special hazards due to substance or mixture

Dangerous combustion products: in the case of a fire hazardous decomposition products can occur: carbon monoxide, carbon dioxide, monomers, acrylonitrile, styrene, alpha-methylstyrene, aliphatic and aromatic hydrocarbons, nitrogen oxides, aldehydes and acids, ammonia, hydrogen cyanide, hydrogen fluoride, perfluoro-isobutene, carbonyl fluoride, as well as toxic fumes, gases or particles.

Under certain fire conditions traces of other noxious products cannot be ruled out.

5.3 Notes on fire-fighting

Only enter danger zone with a breathing apparatus that is independent of the environmental air.

Wear personal protective equipment.

Cool endangered containers from a safe distance with water spray jet.

Settle evolving vapours with water.

Prevent flashbacks into the hazardous zone.

Keep fire-fighting water away from surface, ground water and soil.

Wear protective clothing and keep a safety distance to avoid skin contact.

SECTION 6: Measures after unintentional release

6.1 Personal precautions, protective equipment and measures to be taken in the case of emergencies

Remove mechanically in order to prevent the risk of slipping or tripping. Avoid the formation of dust. Keep away from open fire since product is combustible.

6.2 Environmental protection measures

Do not allow to penetrate into soil, surface water, drains, drain pipes or into the sewage system. Inform authorities in charge if the product has caused environmental pollution.

6.3 Methods and material for retention and cleaning

Small released quantities: remove mechanically.

Large released quantities: remove mechanically.

6.4 References to other sections

Refer to Section 1 for emergency contact information.

Refer to Section 7 for handling and storage.

Refer to Section 8 for information regarding suitable personal protective clothing.

Refer to Section 13 for further information on waste treatment.

SECTION 7: Handling and storage

7.1 Protective measures for safe handling

Notes on safe handling: Provide extraction systems during machining at the processing machines. Avoid the inhalation of dusts/mists/fumes. An accumulation of dust can lead to the risk of a dust explosion. Generally prevent the accumulation of dust. Take measures against electrostatic charging. Keep away from sources of ignition.

Do not inhale gases contained in the packaging.

Observe general hygiene measures for handling chemicals.

Do not heat the product to temperatures above 90°C. Melt plastic filament only once and use according to the processing instructions.

7.2 Conditions for safe storage and taking into consideration incompatibilities

Special storage conditions: Store in a cool, dry and well ventilated place. Do not store in passageways and staircases. Keep clear from sources of ignition. The product is combustible. Do not store together with strong acids, bases, alkalis and alkaline earth metals and oxidizing agents. Protect from exposure to direct sunlight. Keep product packaging well sealed until use. Carefully seal containers again tightly after initial opening.

Storage class according to TRGS 510: (11) combustible solids.

Observe the usual measures of preventive fire-fighting.

7.3 Specific final applications

Recommendations: not available

Specific solutions for the industrial sector: not available

Remarks: Do not stack container packages on top of one another without securing them.

SECTION 8: Limitation and monitoring of exposure/personal protective equipment

8.1 Parameters to be monitored

Occupational exposure limit values:

When processing this product, especially in a thermal process, the rules for below-mentioned substances need to be adhered to. According to our experience the below-listed limit values can be safely met if effective ventilation and extraction systems are installed at the discharge points of eventually occurring fumes.

Substance	CAS-No.	Basis	Type	Value	Peak limit value	Remarks
Phenol, carboic acid; monohydroxybenzene	108-95-2	EU ELV	TWA	2 ppm 8 mg/m ³		indicative

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; phenylalcohol						
Phenol, carbolic acid; monohydroxybenzene ; phenylalcohol	108- 95-2	EU ELV				Skin absorption possible
Phenol, carbolic acid; monohydroxybenzene ; phenylalcohol	108- 95-2	EU ELV	STEL	4 ppm 16 mg/m ³		Indicative
Phenol, carbolic acid; monohydroxybenzene ; phenylalcohol	108- 95-2	TRGS 900				Registered
Phenol, carbolic acid; monohydroxybenzene ; phenylalcohol	108- 95-2	TRGS 900				Skin absorption possible
Phenol, carbolic acid; monohydroxybenzene ; phenylalcohol	108- 95-2	TRGS 900		2 ppm 8 mg/m ³	2	
Phenol, carbolic acid; monohydroxybenzene ; phenylalcohol	108- 95-2	TRGS 900	Short-term exceedance			Category II: absorptive substances
Chlorobenzene	108- 90-7	TRGS 900				Registered
Chlorobenzene	108- 90-7	TRGS 900		5 ppm 23 mg/m ³	2	Y
Chlorobenzene	108- 90-7	EU ELV	TWA	5 ppm 23 mg/m ³		Indicative
Chlorobenzene	108- 90-7	EU ELV	STEL	15 ppm 70 mg/m ³		Indicative
Chlorobenzene	108- 90-7	TRGS 900	Short-term exceedance			Category II: absorptive substances
4-tert-butylphenol	98- 54-4	TRGS 900				Registered
4-tert-butylphenol	98- 54-4	TRGS 900		0.08 ppm 0.5 mg/m ³	2	
4-tert-butylphenol	98- 54-4	TRGS 900				Skin absorption possible

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4-tert-butylphenol	98-54-4	TRGS 900	Short-term exceedance			Category II: absorptive substances
Bisphenol A; 4,4'-isopropylidendiphenol	80-05-7	TRGS 900				Registered
Bisphenol A; 4,4'-isopropylidendiphenol	80-05-7	TRGS 900	Short-term exceedance			Category I
Bisphenol A; 4,4'-isopropylidendiphenol	80-05-7	TRGS 900		5 mg/m ³	1	Y
Bisphenol A; 4,4'-isopropylidendiphenol	80-05-7	EU ELV	TWA	2 mg/m ³		Indicative
General dust limit value		TRGS 900		10 mg/m ³	2	Inhalable fraction
General dust limit value		TRGS 900		3 mg/m ³	2	Alveolar fraction
General dust limit value		TRGS 900	Short-term exceedance			Category II: absorptive substances
Ethylene benzene	100-41-4	DE BAT	Long-term	300 mg/L		Mandelic acid plus phenylglyoxylic acid, urine; end of exposure resp. end of shift
Ethylene benzene	100-41-4	DE BGW	Long-term	1mg/L		Ethylene benzene, blood, end of exposure resp. end of shift
Ethylene benzene	100-41-4	DE BGW	Long-term	800 mg/g		Creatinine mandelic acid plus phenylglyoxylic acid, urine end of exposure resp. end of shift
Ethylene benzene	100-41-4	DFG	Short-term	176 mg/m ³		



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				40 ppm		
Ethylene benzene	100-41-4	DFG	Long-term	88 mg/m ³ 20 ppm		
Ethylene benzene	100-41-4	EU IOELV	STEL	884 mg/m ³ 200 ppm		Can be absorbed via skin
Ethylene benzene	100-41-4	EU IOELV	TWA	442 mg/m ³ 100 ppm		Can be absorbed via skin
Styrene	100-42-5	DE AGW	Short-term	172 mg/m ³ 40 ppm		
Styrene	100-42-5	DE AGW	Long-term	86 mg/m ³ 20 ppm		
Styrene	100-42-5	DE BGW	Long-term	600 mg/g		Creatinine mandelic acid plus phenylglyoxylic acid, urine; upon long-term exposure/end of exposure rsp. end of shift

DNEL/ PNEC: No values available.

8.2 Limitation and monitoring of exposure

During machining extraction systems at the processing machines are required.

Personal protective measures

Breathing protection

A suitable breathing protection device must be worn if workplace limit values are exceeded. If workplace limit values are not exceeded, suitable breathing protection measures must be taken in the case of dust formation. In the case of dust formation use filter devices with particle filter P1 according to EN 143.

Eye / Face Protection

Tightly sealed safety glasses or basket safety glasses (DIN EN 166)

Other protective measures

Closed protective clothing made of flame-retardant material. Closed safety shoes (ESD-type), (ESD type according to EN 61340-4-3 or equivalent).



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Hand protection, skin and body protection

When working with the melt use heat gloves (Category III EN 388 and EN 407).

Protective gloves: Polyvinylchloride – PVC: Glove thickness ($\geq 0.5\text{mm}$), breakthrough time $> 8\text{h}$. (EN 374). Change contaminated or damaged gloves.

Wear appropriate long-sleeved protective clothing during work.

SECTION 9: Physical and chemical properties

9.1 Information on the basic physical and chemical properties

Commercial form:	Plastic filament/solid
Colour:	white
Odour:	weak, product-specific
Odour threshold:	not determined (not required with regard to safety and application).
pH value:	not applicable
Melting point/freezing point:	not determined
Initial boiling point and boiling range:	not applicable, product decomposes.
Flashpoint:	not applicable
Evaporation rate:	not applicable
Flammability (solid, gaseous):	not determined
Upper/lower flammability or explosion limits	not applicable
Vapour pressure:	not applicable
Vapour density:	not applicable
Relative density:	1.21 g/cm ³
Solubility(ies):	insoluble in water
Distribution coefficient: n-octanol/water:	not applicable
Self-ignition temperature:	not determined
Decomposition temperature:	as of 300°C
Viscosity:	not applicable
Explosive properties:	not applicable
Oxidizing properties:	not applicable

9.2 Additional information

For further technical information on the solid please refer to the respective material data sheet/ product information sheet.

SECTION 10: Stability and reactivity

10.1 Reactivity

When the regulations/notes on the use, storage and handling are observed, this material is not deemed to have any dangerous reactions.

10.2 Chemical stability

The product is chemically stable during appropriate use. Do not heat the product to temperatures above [refer to point 7.1].

During thermal decomposition in the case of fire, due to overheating e.g. in case of inappropriate processing, hazardous gases and fumes can occur which are detrimental to health.

10.3 Possible hazardous reactions

During normal storage conditions and appropriate use there will be no hazardous reactions.

10.4 Conditions to be avoided

The thermal decomposition of the product starts as of 300°C.

10.5 Incompatible materials

Avoid contact with strong acids, strong alkalis and strong oxidizing agents.

10.6 Dangerous decomposition products

During smoldering respectively incomplete combustion toxic gas mixtures will develop which mainly contain CO and CO₂. Dangerous combustion products are listed in Section 5 [cf. Sections 5.2 and 5.3].

Small quantities of emittats can be released during the recommended processing conditions.

When processing this product, especially in thermal processes, the regulations for the below-listed substances need to be adhered to [cf. also Section 8.1]

Phenol; carboic acid; monohydroxybenzene; phenylalcohol

INDEX-No. 604-001-00-2

CAS-Nr. 108-95-2

Classification (1272/2008/EG): Acute Tox. 3 Oral H301 Acute Tox. 3 Inhalative H331

Tox. 3 Dermal H311 Skin Corr. 1B H314 Eye Dam. 1 H318 Mut. 2 H341 STOT RE 2 H373 Aquatic Chronic 2 H411

Chlorobenzene

INDEX-Nr. 602-033-00-1

CAS-Nr. 108-90-7

Classification (1272/2008/EG): Flam. Liq. 3 H226 Acute Tox. 4 Inhalative H332 Skin Irrit. 2 H315 Aquatic Chronic 2 H411

4-tert-Butyl phenol

INDEX-Nr. 604-090-00-8

CAS-Nr. 98-54-4

Classification (1272/2008/EG): Skin Irrit. 2 H315 Eye Dam. 1 H318 Repr. 2 H361f Aquatic Chronic 1 H410

Bisphenol A; 4,4'-Isopropylidendiphenol



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CAS-Nr.:80-05-7

Classification (1272/2008/EG): Repr. 1B H360F STOT SE 3 Inhalative H335 Eye Dam. 1 H318 Skin Sens 1 H317 Aquatic Chronic 2 H411

SECTION 11: Toxicological information

11.1 Information on noxious effects

The product does, to the best of our current knowledge, not have any noxious health effects if product is appropriately used and handled.

Processing and machining require good ventilation or extraction systems at the processing machines.

The thermal decomposition products of fluorinated polymers can cause polymer fever with flu-like symptoms in humans, especially after smoking contaminated tobacco products.

SECTION 12: Environmentally relevant information

12.1 Toxicity

Result/ summary: not available

12.2 Persistence and degradation

Result/ summary: not/poorly degradable

12.3 Bioaccumulation potential

No bio-availability

12.4 Mobility in the soil

Distribution coefficient soil/water (Koc): not applicable

Mobility: not applicable

12.5 Results of PBT- and vPvB assessment

PBT: not applicable

vPvB: not applicable

12.6 Other detrimental effects

No special effects or dangers are known. However, do not allow to penetrate into the environment, ground waters, surface waters or the sewage system.

SECTION 13: Disposal information

13.1 Procedures of waste disposal

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The product can be incinerated in an approved plant in compliance with technical guidelines or stored together with domestic waste in an appropriate landfill site. Hydrogen fluorides must be removed by flue gas scrubbing.

Waste name: fluorine-containing plastic waste.

EC waste key no.: The waste keys depend on the intended use of this product.

Contaminated packaging: Packaging that cannot be cleaned has to be disposed of in the same way as the product itself.

General: Prevent the release into the environment. Dispose of in compliance with regional respectively national safety instructions.

SECTION 14: Transport information

Not deemed to be hazardous goods according to the transport regulations

14.1 UN number

Not applicable

14.2 Appropriate UN shipping name

Not applicable

14.3 Transport hazard class

Not applicable

14.4 Packaging group

Not applicable

14.5 Environmental risks

Not known

14.6 Special precautions for the user

Not known

14.7 Bulk transport according to Annex II of the MARPOL – Convention and according to the IBC Code

Not applicable

SECTION 15: Legal regulations

15.1 Regulations on safety, health and the protection of the environment/ specific legal regulations for the product or mixture

No labelling required according to EU guidelines.

Water hazard class: nwg - not hazardous to water

15.2 Chemical safety assessment

No chemical safety assessment is required.

The product is not classified as dangerous.

SECTION 16: Other information

Full text on possible risks listed in Sections 2, 3 and 10 of the CLP classification (1272/2008/EC).

H226 -	Liquids and fumes are combustible.
H301 -	Toxic in case of ingestion.
H311 -	Toxic in case of skin contact.
H314 -	Causes severe acid burns of the skin and severe eye damages.
H315 -	Causes skin irritation
H317 -	Can cause allergic skin reactions.
H318 -	Causes severe eye damage.
H331 -	Toxic when inhaled.
H332 -	Detrimental to health when inhaled.
H335 -	Can irritate airways.
H341 -	Can probably cause genetic defects.
H360F -	Can be detrimental to fertility.
H361f -	Can probably have negative effects on fertility.
H373 -	Can damage organs upon long-term or repeated exposure.
H410 -	Very toxic for water organisms with long-term effect.
H411 -	Toxic for water organisms with long-term effect.

Abbreviations and acronyms

EK: Europäischen Kommission (European Commission)

REACH: Registration, Evaluation, Authorisation and Restriction of Chemical substances (Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe)

STOT: Specific Target Organ Toxicity (Zielorgan-Toxizität)

PBT: Persistent, Bioakkumulierbar, Toxisch

vPvB: very Persistent and very Bioaccumulating (sehr Persistent und sehr Bioakkumulierbar)

ADR: Accord européen relatif au transport international des marchandises Dangereuses par Route (European Agreement

concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement concernant le transport international ferroviaire des marchandises dangereuses (Regulations for the International Transport of Dangerous Goods by Rail)

ADN: Accord européen relatif au transport international des marchandises Dangereuses par voies de Navigation intérieures

(European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)

IMDG: International Maritime Dangerous Goods Code

ICAO: International Civil Aviation Organization

WGK: Wassergefährdungsklasse (water hazard class)

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EU IOELV: European Union indicative occupational exposure limit values

TWA: time-weighted-average

STEL: short-term exposure limit

TRGS: Technische Regeln für Gefahrstoffe

BGW: Biologischer Grenzwert

AGW: Arbeitsplatzgrenzwert

BAT: Biologischer Arbeitsplatztoleranzwert

There is no legal requirement to provide a Safety Data Sheet for this product and it is only provided by us for customer service reasons.

The information provided above in this Safety Data Sheet is based on the current state of our knowledge and experience and describes the product with regard to safety requirements. The information does not provide any analysis certificate or technical data sheet respectively a description of the quality guarantee of the goods. An agreement or quality agreement or the suitability of the product for a concrete intended use purpose may not be derived from the intended use listed in the safety data sheet. The recipient of the product is responsible for compliance with existing laws and regulations and possible property rights.

The product is not classified as hazardous so that no obligation exists to supply a safety data sheet according to REACH Art. 31, Section 1. The presented product information was created in its layout according to REACH, Annex II, in order to meet the information requirements according to REACH Art. 31 Sect. 3, Art.32 and Art. 33 also for products, where no accompanying safety data sheet is required upon delivery of the product.

This document is not subject to a change service.

This is to certify that the above translation from German into English is complete and correct.

Sabine Bartsch
Königswinter, 13.11.2020

Certified translator for the Higher Regional Court of Cologne/Germany