BVOH

1. IDENTIFICATION

1.1.	**Product identifier**	
	Trade name	**3DGence BVOH**
	Product type	**Polyvinyl alcohol filament**
1.2.	**Recommended use**	Filament used in 3D printers
1.3.	**Company**	3DGence sp. z o.o. Mickiewicza 29 40-085 Katowice, Poland
	Telephone	+48 32 438 98 65
	E-mail	sales@3dgence.com
1.4.	**Emergency telephone number**	+48 32 438 98 65

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

According to UN GHS criteria
No need for classification according to GHS criteria for this product.

2.2. Label elements

Globally Harmonized System (GHS)
The product does not require a hazard warning label in accordance with GHS criteria.

2.3. Other hazards

According to UN GHS criteria
The product may cause burns, if handled in the melted state.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixtures

Chemical nature
polymer blend based on: alcohols.

Hazardous ingredients (GHS)
According to UN GHS criteria.No particular hazards known.

4. FIRST-AID MEASURES

4.1. Description of first aid measures

General information	Remove contaminated clothing.
If inhaled:	Remove the affected individual into fresh air and keep the person calm. If symptoms persist, seek medical advice.
On contact with eyes:	Wash affected eyes for at least 15 minutes under running water with eyelids held open. If irritation develops, seek medical attention.
On skin contact:	Wash thoroughly with soap and water If irritation develops, seek medical attention. Burns caused by molten material require hospital treatment.
On ingestion:	Rinse mouth immediately with water. Immediate medical attention required.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms:	(Further) symptoms and / or effects are not known so far.
Hazards:	No hazard is expected under intended use and appropriate handling.

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

Treatment:	Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media:	Dry powder, foam, carbon dioxide.
Unsuitable extinguishing media for safety reasons:	Water jet.
Additional information:	Water jet can rapidly spread fire.

5.2. Special hazards arising from the substance or mixture

harmful vapours, carbon oxides
Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire. Under certain conditions in case of fire other hazardous combustion products may be generated.

5.3. Advice for fire-fighters

Special protective equipment:	Wear a self-contained breathing apparatus.
Further information:	Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. ACCIDENTAL RELEASE MEASURES

High risk of slipping due to leakage/spillage of product.

6.1. Personal precautions, protective equipment and emergency procedures

No special precautions necessary.

6.2. Environmental precautions

Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

For small amounts:	Sweep/shovel up.
For large amounts:	Sweep/shovel up. Pack in tightly closed containers for disposal.

Dispose of contaminated material as waste according to item 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation of dusts/mists/vapours. Ensure adequate ventilation. Provide suitable exhaust ventilation at the drying process and in the area surrounding the melt outlet of processing machines. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Avoid the formation and deposition of dust.

Protection against fire and explosion:
The product is not an oxidizer, not self-combustible and not explosive. Avoid dust formation. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition.

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Containers should be stored tightly sealed in a dry place. Do not store in steel or stainless steel containers; polyethylene is the preferred material.

Storage stability:
Avoid extreme heat.
Avoid freezing.

Frost sensitive.
The packed product will be damaged by high temperatures.

7.3. Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Components with occupational exposure limits:	No substance specific occupational exposure limits known.

8.2. Exposure controls

Personal protective equipment	
Respiratory protection:	Wear respiratory protection if ventilation is inadequate. Suitable respiratory protection for higher concentrations or long-term effect: (Particle filter EN 143 P1).
Hand protection:	Chemical resistant protective gloves (EN ISO 374-1).
Eye protection:	Safety glasses with side-shields (frame goggles) (e.g. EN 166).
Body protection:	Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Wearing of closed work clothing is recommended. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Form:	Filament.
Colour:	White to light yellow.
Odour:	Vinegar-like.
Odour threshold:	Not determined.
pH value:	5 - 7
melting range:	150 - 300 °C
Boiling point:	The product is a non-volatile solid.
Flash point:	> 200 °C
Evaporation rate:	The product is a non-volatile solid.
Flammability:	Not highly flammable.
Lower explosion limit:	For solids not relevant for classification and labelling.
Upper explosion limit:	For solids not relevant for classification and labelling.
Ignition temperature:	440 °C
Vapour pressure:	No data available.
Relative density:	Study does not need to be conducted.

Relative vapour density (air):	The product is a non-volatile solid.
Solubility in water:	Completely soluble.
Solubility (qualitative) solvent(s):	N,N-Dimethylformamide, Dimethyl sulfoxide soluble.
Partitioning coefficient n-octanol/ water (log Kow):	Not applicable for mixtures.
Self ignition:	Not self-igniting.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated. Prolonged thermal loading can result in products of degradation being given off.
Viscosity, dynamic:	Not applicable, the product is a solid.
Explosion hazard:	Not explosive.
Fire promoting properties:	Not fire-propagating

9.2. Other information

Self heating ability:	It is not a substance capable of spontaneous heating.
SADT:	Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.
Bulk density:	approx. 1.140 kg/m^3

10. STABILITY AND REACTIVITY

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:	No corrosive effect on metal.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

The product is stable if stored and handled as prescribed/indicated.

10.4. Conditions to avoid

Temperature: > 300 °C
Prolonged exposure to elevated temperatures may result in exothermic decomposition accompanied by a pressure build-up in sealed containers. Avoid all sources of ignition: heat, sparks, open flame.

10.5. Incompatible materials

Substances to avoid:
oxidizing agents

10.6. Hazardous decomposition products

Hazardous decomposition products:
Prolonged thermal loading can result in products of degradation being given off., monomers, gases/vapours, oxides, hydrocarbons, cyclic low molecular weight oligomers

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity	
Assessment of acute toxicity:	Virtually nontoxic after a single ingestion. The product has not been tested. The statement has been derived from the properties of the individual components.
Irritation	
Assessment of irritating effects:	May cause slight irritation to the eyes. The product has not been tested. The statement has been derived from the properties of the individual components.
Serious eye damage/irritation:	May cause slight irritation to the eyes.
Respiratory/Skin sensitization	
Assessment of sensitization:	No applicable information available.
Germ cell mutagenicity	
Assessment of mutagenicity:	No applicable information available.
Carcinogenicity	

Assessment of carcinogenicity:	No applicable information available.
Reproductive toxicity	
Assessment of reproduction toxicity:	No applicable information available.
Developmental toxicity	
Assessment of teratogenicity:	No applicable information available.
Repeated dose toxicity and Specific target organ toxicity (repeated exposure)	
Assessment of repeated dose toxicity:	No applicable information available.
Aspiration hazard	
not applicable	
Other relevant toxicity information	
The product has not been tested. The statement has been derived from the properties of the individual components.	

12. ECOLOGICAL INFORMATION

12.1.	**Toxicity**	
	Assessment of aquatic toxicity:	There is a high probability that the product is not acutely harmful to aquatic organisms.
12.2.	**Persistence and degradability**	
	Assessment biodegradation and elimination (H_2O):	Product is not expected to be readily biodegradable.
12.3.	**Bioaccumulative potential**	
	Assessment bioaccumulation potential:	The product has not been tested.
12.4.	**Mobility in soil**	
	Assessment transport between environmental compartments:	
	Volatility:	Study technically not feasible.
	Adsorption in soil:	Due to the product characteristics the test is impossible.
12.5.	**Other adverse effects**	
	The product does not contain substances that are listed in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.	

12.6. Additional information

Adsorbable organically-bound halogen (AOX):	This product contains no organically-bound halogen.
Add. remarks environm. fate & pathway:	Due to the consistency of the product, dispersion into the environment is impossible. Therefore no negative effects on the environment may be anticipated based on the present state of knowledge.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Dispose of in accordance with national, state and local regulations.
Contact specialized companies about recycling.

Contaminated packaging:
Completely emptied packagings can be given for recycling.

14. TRANSPORT INFORMATION

Land transport	
ADR	**Not classified as a dangerous good under transport regulations.**
UN number or ID number:	Not applicable.
UN proper shipping name:	Not applicable.
Transport hazard class(es):	Not applicable.
Packing group:	Not applicable.
Environmental hazards:	Not applicable.
Special precautions for user	None known.
RID	**Not classified as a dangerous good under transport regulations.**
UN number or ID number:	Not applicable.
UN proper shipping name:	Not applicable.
Transport hazard class(es):	Not applicable.
Packing group:	Not applicable.
Environmental hazards:	Not applicable.
Special precautions for user:	None known.
Transport in inland waterway vessel: Not evaluated	

Sea transport	
IMDG	**Not classified as a dangerous good under transport regulations.**
UN number or ID number:	Not applicable.
UN proper shipping name:	Not applicable.
Transport hazard class(es):	Not applicable.
Packing group:	Not applicable.
Environmental hazards:	Not applicable.
Special precautions for user:	None known.
Air transport	
IATA/ICAO	**Not classified as a dangerous good under transport regulations.**
UN number or ID number:	Not applicable.
UN proper shipping name:	Not applicable.
Transport hazard class(es):	Not applicable.
Packing group:	Not applicable.
Environmental hazards:	Not applicable.
Special precautions for user:	None known.
Maritime transport in bulk according to IMO instruments	
Maritime transport in bulk is not intended.	

15. REGULATORY INFORMATION

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

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. OTHER INFORMATION

Any other intended applications should be discussed with the manufacturer. Corresponding occupational protection measurements must be followed.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.