voxeljet AG
86316 Friedberg

SECTION 1: Identification of the substance / preparation and of the company

1.1 Product identifier

voxeljet - PolyPor-Pulver Typ C

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

1.2.1 Relevant uses

Material for 3D-print
Production of synthetic prototypes by means of 3D printing

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

voxeljet AG
Paul-Lenz-Straße 1
86316 Friedberg / GERMANY
Phone +49(0)821-7483 100
Fax +49(0)821-7483 111
Homepage www.voxeljet.com
E-mail info@voxeljet.de

Address enquiries to

Technical information info@voxeljet.de

Safety Data Sheet sdb@chemiebuero.de

1.4 Emergency phone

Advisory body +49 (0)89-19240 (24h) (english)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Skin Sens. 1: H317 May cause an allergic skin reaction.

2.1.2 Classification according to Directive 67/548/EEC or 1999/45/EC

Sensitizing. - R 43: May cause sensitisation by skin contact.
R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements

The product is classified and required to be labelled in accordance with EC-Directives

Labelling according to Regulation (EC) 1272/2008

Hazard pictograms

Signal word WARNING

Contains: Dibenzoyl peroxide

Hazard statements H317 May cause an allergic skin reaction.

Precautionary statements

P261 Avoid breathing dust.
P280 Wear protective gloves/protective clothing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P501 Dispose of contents/container to in accordance with local/regional/national/international regulation.

2.3 Other hazards

Physico-chemical hazards Accumulation of fine dust may entail the risk of a dust explosion in the presence of air. Combustible.

Other hazards none

SECTION 3: Composition / Information on ingredients

Product-type:

The product is a mixture.

Range [%]	Substance
1 - < 2	Dibenzoyl peroxide
	CAS: 94-36-0, EINECS/ELINCS: 202-327-6, EU-INDEX: 617-008-00-0, ECB-Nr.: 01-2119511472-50-XXXX
	GHS/CLP: Org. Perox. B: H241 - Eye Irrit. 2: H319 - Skin Sens. 1: H317 - Aquatic Acute 1: H400, M = 10
	EEC: E-Xi-O-N, R 3-7-36-43-50/53

Comment on component parts Substances of Very High Concern - SVHC: substances are not contained or are below 0,1%.
For full text of H-statements and R-phrases: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information Change soaked clothing.

Inhalation Ensure supply of fresh air.
In the event of symptoms seek for medical treatment.

Skin contact In case of contact with skin wash off immediately with soap and water.
Consult a doctor if skin irritation persists.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion Supply with medical care.
Rinse out mouth and give plenty of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Headache

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
Forward this sheet to the doctor.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Foam, dry powder, water spray jet, carbon dioxide.

Extinguishing media that must not be used Full water jet.

5.2 Special hazards arising from the substance or mixture

Risk of formation of toxic pyrolysis products.

5.3 Advice for firefighters

Use self-contained breathing apparatus.

Cool containers at risk with water spray jet.
Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.
Avoid dust formation.
Use personal protective equipment.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Take up mechanically. Avoid production of dust.
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide vacuuming if dust raised.
Avoid the formation and deposition of dust.
Provide suitable vacuuming at the processing machines.
It is recommended that the models are burned out at a temperature of 700°C in a standard atmosphere. In these conditions, the polymer will fully oxidise to carbon dioxide and water. The emissions from the process should be extracted and vented to atmosphere in line with normal foundry best practice.

Dust can form an explosive mixture with air.
The product is combustible.

Do not eat, drink, smoke or take drugs at work.
Wash hands before breaks and after work.
Use barrier skin cream.
Take off contaminated clothing and wash before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.

Keep container tightly closed.
Keep container in a well-ventilated place.
Store in a dry place.
Do not keep at temperatures above 30°C.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (GB)

Range [%]	Substance
1 - < 2	Dibenzoyl peroxide
	CAS: 94-36-0, EINECS/ELINCS: 202-327-6, EU-INDEX: 617-008-00-0, ECB-Nr.: 01-2119511472-50-XXXX
	Long-term exposure: 5 mg/m³

DNEL

Range [%]	Substance
1 - < 2	Dibenzoyl peroxide, CAS: 94-36-0
	Industrial, dermal, Long-term - systemic effects: 6,6 mg/kg bw/d.
	Industrial, inhalative, Long-term - systemic effects: 11,75 mg/m³.
	general population, oral, Long-term - systemic effects: 1,65 mg/kg bw/d.
	general population, dermal, Long-term - systemic effects: 3,3 mg/kg bw/d.
	general population, inhalative, Long-term - systemic effects: 2,9 mg/m³.

PNEC

Range [%]	Substance
1 - < 2	Dibenzoyl peroxide, CAS: 94-36-0
	oral (food), 6,67 mg/kg dw.
	soil, 0,0758 mg/kg dw.
	sediment (freshwater), 0,338 mg/kg dw.
	sewage treatment plants (STP), 0,35 mg/l.
	freshwater, 0,000602 mg/l.
	seawater, 0,0000602 mg/l.

8.2 Exposure controls

Additional advice on system design
Ensure adequate ventilation on workstation.
To pay attention to dust limit value (ACGHI-2011: 10 mg/m³ particle inhalable; 3 mg/m³ particle respirable).

Eye protection
Safety glasses.

Hand protection
The details concerned are recommendations. Please contact the glove supplier for further information.
Butyl rubber, >480 min (EN 374).

Skin protection
light protective clothing

Other
Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of these equipments to chemicals should be ascertained with the respective supplier.
Avoid contact with eyes and skin.
Do not inhale dust.

Respiratory protection
Respiratory protection in the case of dust formation.
Short term: filter apparatus, filter P1.

Thermal hazards
none

Delimitation and monitoring of the environmental exposition
Comply with applicable environmental regulations limiting discharge to air, water and soil.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	Powder beads
Color	white
Odor	characteristic
Odour threshold	not determined
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	not applicable
Flash point [°C]	not applicable
Flammability [°C]	not determined
Lower explosion limit	not determined
Upper explosion limit	not determined
Oxidizing properties	no
Vapour pressure/gas pressure [kPa]	not applicable
Density [g/ml]	1,1 - 1,18 (20 °C / 68,0 °F)
Bulk density [kg/m³]	550-750
Solubility in water	insoluble
Partition coefficient [n-octanol/water]	not determined
Viscosity	not applicable
Relative vapour density determined in air	not determined
Evaporation speed	not determined
Melting point [°C]	not determined
Autoignition temperature [°C]	not determined
Decomposition temperature [°C]	> 30

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

Accumulation of fine dust may entail the risk of a dust explosion in the presence of air.

10.4 Conditions to avoid

Strong heating.
Dust formation.

10.5 Incompatible materials

not determined

10.6 Hazardous decomposition products

In the case of heating following (decomposition) products may occure:
Methyl methacrylate
Oxide of carbon (COx)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Range [%]	Substance
1 - < 2	Dibenzoyl peroxide, CAS: 94-36-0
	LD50, oral, Rat: >5000 mg/kg.

Serious eye damage/irritation	not determined
Skin corrosion/irritation	not determined
Respiratory or skin sensitisation	Sensitizing.
Specific target organ toxicity — single exposure	not determined
Specific target organ toxicity — repeated exposure	not determined
Mutagenicity	not determined
Reproduction toxicity	not determined
Carcinogenicity	not determined
General remarks	Can cause mechanical irritation.
	Toxicological data of complete product are not available. The product was classified on the basis of the calculation procedure of the preparation directive. The toxicity data listed pertaining to the ingredients are intended for those working in the medicinal professions, experts for occupational health and safety and toxicologists. The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 12: Ecological information

12.1 Toxicity

Range [%]	Substance
1 - < 2	Dibenzoyl peroxide, CAS: 94-36-0
	LC50, (96h), Oncorhynchus mykiss: 0,0602 mg/l (OECD 203).
	LC50, (96h), fish: 1,7-2,4 mg/l (OECD 203).
	EC50, (48h), Daphnia magna: 2,91 mg/l (OECD 202).
	EC50, (48h), Daphnia magna: 0,11 mg/l (OECD 202).
	EC50, (72h), Pseudokirchneriella subcapitata: 0,0711 mg/l (OECD 201).
	NOEC, (48h), Daphnia magna: 1,99 mg/l.

12.2 Persistence and degradability

Behaviour in environment compartments	not determined
Behaviour in sewage plant	not determined
Biological degradability	The product is not biodegradable.

12.3 Bioaccumulative potential

Low bioaccumulation potential

12.4 Mobility in soil

The product is insoluble in water.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Other adverse effects

Do not discharge product unmonitored into the environment.
The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product

Dispose of as hazardous waste.
Coordinate disposal with the authorities if necessary.

Waste no. (recommended) 070214*

Contaminated packaging

Uncontaminated packaging may be taken for recycling.

Waste no. (recommended) 150110*
150102

SECTION 14: Transport information

14.1 UN number

See SECTION 14.2 in accordance with UN shipping name

14.2 UN proper shipping name

Transport by land according to ADR/RID NO DANGEROUS GOODS

Inland navigation (ADN) NO DANGEROUS GOODS

Marine transport in accordance with IMDG NOT CLASSIFIED AS "DANGEROUS GOODS"

Air transport in accordance with IATA NOT CLASSIFIED AS "DANGEROUS GOODS"

14.3 Transport hazard class(es)

See SECTION 14.2 in accordance with UN shipping name

14.4 Packing group

See SECTION 14.2 in accordance with UN shipping name

14.5 Environmental hazards

See SECTION 14.2 in accordance with UN shipping name

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

not applicable

SECTION 15: Regulatory information

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

EEC-REGULATIONS	1967/548 (1999/45); 1991/689 (2001/118); 1999/13; 2004/42; 648/2004; 1907/2006 (Reach); 1272/2008; 75/324/EEC (2008/47/EC); 453/2010/EC
TRANSPORT-REGULATIONS	DOT-Classification, ADR (2013); IMDG-Code (2013, 36. Amdt.); IATA-DGR (2013).
NATIONAL REGULATIONS (GB):	EH40/2005 Workplace exposure limits (Second edition, published December 2011). CHIP 3/ CHIP 4
- Observe employment restrictions for people	Observe employment restrictions for mothers-to-be and nursing mothers. Observe employment restrictions for young people.
- VOC (1999/13/CE)	0%

15.2 Chemical safety assessment

For this product a chemical safety assessment has not been carried out.

SECTION 16: Other information

16.1 R-phrases (SECTION 3)

R 3: Extreme risk of explosion by shock, friction, fire or other sources of ignition.
R 7: May cause fire.
R 36: Irritating to eyes.
R 43: May cause sensitisation by skin contact.
R 50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

16.2 Hazard statements (SECTION 3)

H400 Very toxic to aquatic life.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H241 Heating may cause a fire or explosion.

16.3 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
ELINCS = European List of Notified Chemical Substances
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform ChemicaL Information Database
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.4 Other information

Customs Tariff	not determined
Classification procedure	Skin Sens. 1: H317 May cause an allergic skin reaction. (Calculation method)

Modified position

SECTION 2 deleted: Classification according to conversion table Annex VII 1272/2008/EC

SECTION 2 been added: R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 2 been added: P501 Dispose of contents/container to in accordance with local/regional/national/international regulation.

SECTION 2 been added: P363 Wash contaminated clothing before reuse.

SECTION 2 been added: P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

SECTION 2 been added: P280 Wear protective gloves/protective clothing.

SECTION 2 been added: P261 Avoid breathing dust.

SECTION 7 been added: Take off contaminated clothing and wash before reuse.

SECTION 8 been added: Comply with applicable environmental regulations limiting discharge to air, water and soil.

SECTION 10 been added: Methyl methacrylate

SECTION 10 deleted: No hazardous decomposition products known.

SECTION 10 been added: In the case of heating following (decomposition) products may occure:

SECTION 10 been added: Oxide of carbon (COx)

SECTION 10 been added: Dust formation.

SECTION 11 been added: Can cause mechanical irritation.

SECTION 11 been added: Sensitizing.

SECTION 12 been added: The product is insoluble in water.

SECTION 12 been added: Low bioaccumulation potential

SECTION 12 been added: Based on all available information not to be classified as PBT or vPvB respectively.

SECTION 12 been added: The product is not biodegradable.

SECTION 15 been added: For this product a chemical safety assessment has not been carried out.

SECTION 16 been added: Calculation method