Material safety data

fusiolen PP-R (80) Polypropylene (PP)

Granulate

This Material Safety Data Sheet complies with:

- Directive 91/155/EEC of the Commission of the European Communities and
- Draft International Standard ISO/DIS 11014 'Safety data sheet for chemical products'.

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1. Chemical product and company identification

1.1 Chemical product name

	fusiolen PP-R (80)
Product code	PP
Chemical name	Polypropylene (Random Copolymer)

1.2 Manufacturer

aquatherm GmbH, Kunststoff- Extrusions- und Spritzgießtechnik
Biggen 5
D - 57439 Attendorn
Germany

1.3 Emergency telephone number

Germany
Tel. +49 2722 9500

2. Composition/information on ingredients

This chemical product is a preparation:

common chemical name	polypropylene
formula	$(-CH_2-CHCH_3-)_n$
generic name	polyolefines
CAS number	9003-07-0 and 9010-79-1
synonym(s)	PP
ingredients contributing to the hazard	none

3. Hazards identification

The most important hazards are:

Health hazard	*Specific hazards*	*Main symptoms*
Lung toxin	When/if inhaled, fines may cause mechanical irritation of the respiratory tract	Coughing
Skin hazard	Material is unlikely to cause irritation but if contact with molten material occurs, treat as for thermal burn	Thermal burns (see Section 4)
Eye hazard	Fines can cause mechanical irritation	Red eyes
Ingestion	No hazard	N/a

The material is not classified as being a dangerous preparation according to EC Directive 88/379 and the subsequent amendments. See also Section 15.

R(isk) phrases n/a.

4. First aid measures

Inhalation .

When fumes of molten material have been inhaled:
- move person to fresh air
- rest in half upright position
- loosen clothing
- keep warm.

In case of respiratory problems move person to first aid station or hospital for medical treatment.

Skin contact

Any molten material on the skin or any burns should be cooled (off) as quickly as possible by means of cold water. Cover the wound with sterile cloth and move person to first aid station or hospital for medical treatment.

Attention: never pull off the molten material from the wound.

Eye contact

Any material entering the eye should be flushed out with copious volumes of water.

Ingestion

No danger of toxicity, the material is biologically inactive.

5. Fire-fighting measures

Extinguishing media:

Water, water/foam, CO_2, ABC fire extinguishing powder.

On fire		*Extinguishing medium*	*Method*
Processing plant	Polymer	Water/foam	Spray cooling
	Equipment	CO_2	CO_2 snow extinghuiser
		ABC powder	ABC powder extinghuiser
Storage	Bags	Water or water/foam	Spray cooling
	Bulk silo	Cooling with water	Firehose jet
Transport	Lorry/pallets	Water or water/foam	Spray cooling
	Bulk car	Water/foam	Cover fire side

Not to be used for reasons of safety N/a

Specific hazards:

Solid

Treat the material as a solid that can burn.
Moulded parts or solid granules burn slowly with a low smoke density and flaming drips, carbon monoxide and irritating oxygen containing organic substances are released.

Product fines

A spark can ignite an explosive concentration of product fines in air (see Sections 7 and 9).

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Vapours	Hot vapours - from heated material - plus air can be extremely inflammable in the case of stochiometric mixtures.
Combustion products	In case of fire,water,carbon monoxide,carbon dioxide and irritating oxygen containing organic substances are released. The products are dangerous.
Protection of firefighters	Do not approach fire in confined space without positive pressure self contained breathing apparatus and full bunker gear i.e.: bunker coats, helmet with face shield, gloves, rubber boots. Note: cool fire exposed containers with water.

6. Accidental release measures

Personal precautions

Apply ample grounding with respect to dust explosion dangers caused by released dust from granulate supply (filters). see Section 7.1.
Protect skin, eyes and/or hands (see Section 8).
Prevent generation of dust (to be realised from powder).
Take great care in immediately preventing further powder or dust release in view of the formation of dust clouds in air.

Environmental precautions

For disposal considerations see Section 13.

Cleaning-up methods

Shovel or sweep up released material.
Suck up fines or dust with special industrial vacuum cleaner.
Avoid the generation of dust clouds.
Put into containers for reclaiming or disposal.

7. Handling and storage

7.1 Handling

Precautions:

General precautions	For safe polymer processing the material should be completely dry.
Personal protection	For more information on personal protection when handling the material see Section 8.
Hygienic precautions	Adequate washing facilities, with supplies of mild soap and hand cleansers should be available at all working locations. Solvents should never be used as hand cleansers. Smoking, eating and drinking in working and storage areas should be prohibited.

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Advice on technical measures:

Ventilation: general mechanical	A ventilation system should be installed where: a) melt processing of the material is carried out, b) solid material is being ground or machined, c) any high temperature processing is carried out (e.g. sealing).
Ventilation: local exhaust	It is advised to install local exhaust ventilation in the vicinity of processing machines.
Prevention of dust generation	Suppression: optimise the piping system used for pneumatic transport (surface, corners, length, velocities). Filtering: take extreme care of dust explosion danger and apply ample local grounding where the presence of fines plus static electricity in or near the pneumatic transport lines is very likely. Note: when handling the granulate normally dust will not be a problem with respect to breathing. During regrinding operations however, the use of a dust mask is advised.
Prevention of fire and explosion	See information on static discharges in Section 7.2.

7.2 Storage

Technical measures	Owing to the electrostatic properties of the material and its fines a grounding installation for storage silos and pneumatic transport is obligatory. Other ways of prevention with respect to electrostatic properties are: inerting i.e. lowering oxygen concentrations by means of nitrogen supply, control of transport speed, etc.
Storage conditions	Avoid prolonged storage in open sunlight, high temperatures and/or high humididity as this could well speed up alteration and consequently loss of quality of the material and this could lead to unforeseen dangers. Keep polymer completely dry for good processing (in spite of increased static danger). Stack pallets only two high when storing, in order to prevent collapsing.
Incompatible products	N/a

8. Exposure controls/personal protection

Control parameters	Threshold Limit Value (TLV): a provisional TLV (TWA 8 hours) is advised in accordance with the TLV of non-toxic nuisance dust: - 10 mg/m^3 for total dust, - 5 mg/m^3 for respirable dust.

Personal protective equipment

Respiratory protection	When the threshold limit value (TLV) is accidentally exceeded see 'Prevention of dust generation' in Section 7.1.
Hand protection	When handling a hot melt (e.g. during purging of a processing machine) heat resistant gloves should be worn.
Eye protection	When handling a hot melt (e.g. during purging of a processing machine) heat resistant face shields should be worn.
Skin and body protection	The use of apron, boots and/or full protective suit is not prescribed here, it is up to the decision of the processor.

9. Physical and chemical properties

Polymer properties:

physical state	solid (at +20 °C)
form	granulate / powder
colour	coloured or natural
odour	weak paraffinic
pH value	n/a
relative density	900-920 kg/m^3
bulk density	550-630 kg/m^3
melting point/range	155-170 °C
softening point/range	140-148 °C
viscosity	n/a
boiling point/range	n/a
vapour pressure	n/a
vapour density	n/a
evaporation rate	n/a
solubility in water	insoluble
solubility in other substances	soluble only in some aromatic hydrocarbons chlorinated hydrocarbons and/or n-paraffines (>C14) at high temperatures
partition coefficient (n-octanol/water)	n/a
miscibility	n/a
volume conductivity	low, danger of static charges

Safety properties:

decomposition temperature	>300 °C
flash point	>320 °C
auto ignition temperature	>350 °C

Dust explosive properties:

lower explosion limit (LEL)	mandatory to remain <10 g/m3 air (fines <125 µm)
minimum ignition temperature	428 °C
dust explosion class	St 1 (fines)

10. Stability and reactivity

The material is chemically stable, however under certain conditions hazardous reactions can take place.

Conditions to avoid:

Material fines	Material fines - accidentally released in air - can result in an explosive concentration (see Sections 6, and 7.1).
Electrostatic loading	For information on safety measures regarding electrostatic loading see: Section 7.1 'Prevention of dust generation' and Section 7.2 'Technical measures'.
Dust/powder air mixtures	Working with powders always incorporates the danger of the formation of explosive mixtures of the dust and/or powder with air, in particular at concentrations above 10 g/m^3. One spark can ignite such a mixture, other ignition sources are: hot surfaces, open flames, radiant heat, etc. Fines/particle sizes 10-50 µm are extremely dangerous, sizes 300-500 µm less dangerous and sizes >500 µm are not dangerous. Do not use an open fire during processing and demoulding.
Gas/vapour air mixtures	At high temperatures (local hot spots) inerting should possibly be applied, in order to strongly reduce oxygen concentrations. Stabilisation of the polymer results in inflammable gases being formed only at higher than usual temperatures.
Processing temperatures	Do not exceed 320 °C.
Long term exposure	Do not expose during long terms to temperatures above 80 °C and/or UV light (see also Section 7.2).
Materials to avoid	Strong oxidizing agents.
Hazardous decomposition products	At processing temperatures some degree of thermal degradation will occur. Although highly dependent on temperature and environmental conditions a variety of decomposition products may be present in small amounts, ranging from simple hydrocarbons (e.g. methane, propane) to toxic and/or irritating gases (e.g. carbon monoxide, carbon dioxide, acids, ketones, aldehydes).
Changes in physical appearance	Dust fines (and powder) can cause extremely dangerous situations compared with base material (see Sections 5, 6, 7 and 9).

There is no possibility of degradation to unstable products under normal circumstances. Only at extreme temperatures (above the decomposition temperature) degradation will occur.

11. Toxicological information

Acute toxicity	None (LD_{50} oral rat >5000 mg/kg)
Local effects	None
Chronic short and long term toxicity	None
Sensitization	None
Specific effects (carcinogenicity, mutagenicity, teratogenicity, narcosis)	None

12. Ecological information

Mobility	None
Persistence/degradability	Very low UV degradability
Bioaccumulation	None
Ecotoxicity	There is no indication that this material is a risk to the environment. This material is a water insoluble non-toxic solid material.
Aquatic toxicity	

13. Disposal considerations

The disposal of this material - as well as the used packaging thereoff - presents no danger regarding toxicological and/or ecological considerations. It can be burnt in a controlled way or be disposed of via landfill, or it can be recycled for less critical non-food applications.

Note: Additional national or regional provisions may be in force relevant to this matter.

14. Transport information

General precautions	Keep the material dry during transport.
Special precautions	No special precautions have to be met as the material is not classified regarding the transport of dangerous goods.
GGVSee/IMDG-Code	N/a
ICAO/It	N/a
IATA-DGR	N/a
RID/ADR	N/a
UN-Nr (7th edition)	N/a
GGVE/GGVS	N/a
ADNR	N/a

15. Regulatory information

Labelling	No labelling required under EC-Directive 88/379/EEC.

EEC classification	No dangerous preparation.

Note: Additional national legislation may be in force relevant to this matter.

16. Other information

Recommended application(s)	Pipe - Extrusion
Technical information	For information on material safety contact:

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