

TORLON® 4645

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Identification of the substance or mixture

Product name : TORLON® 4645
Product grade(s) : Torlon® 4645

1.2. Use of the Substance/Mixture

Recommended use : - For further information, please contact: Supplier

1.3. Company/Undertaking Identification

Address : SOLVAY SPECIALTY POLYMERS USA, LLC
4500 McGINNIS FERRY ROAD
ALPHARETTA GA 30005-3914
USA

1.4. Emergency and contact telephone numbers

Emergency telephone number : 1 (800) 621-4590 [Health Information]
1 (800) 424-9300 CHEMTREC® (USA & Canada)
1 (800) 621-4557 [Other Product Information]
1 (770) 772-8880

2. HAZARDS IDENTIFICATION

2.1. Emergency Overview:

General Information

Appearance : pellets, powder
Colour : black
Odour : odourless

Main effects

- Hazardous decomposition products formed under fire conditions.
- Product dust may be irritating to eyes, skin and respiratory system.

2.2. Potential Health Effects:

Inhalation

- Mechanical irritation from the particulates generated by the product.
- Thermal decomposition can lead to release of hazardous gases and vapors

Eye contact

- Mechanical irritation from the particulates generated by the product.

Skin contact

- Mechanical irritation from the particulates generated by the product.

Ingestion

- Low ingestion hazard.

Other toxicity effects

- See section 11: Toxicological Information

2.3. Environmental Effects:

- See section 12: Ecological Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Poly(amide-imide) polymer

CAS-No. : Proprietary
Concentration : $\geq 52.0 - \leq 78.0$ %

Polytetrafluoroethylene

CAS-No. : 9002-84-0
Concentration : $\geq 12.0 - \leq 20.0$ %

Carbon

CAS-No. : 7440-44-0
Concentration : $\geq 10.0 - \leq 35.0$ %

4. FIRST AID MEASURES

4.1. Inhalation

- Remove to fresh air.
- Call a physician immediately.
- Hazardous decomposition products
- Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.

4.2. Eye contact

- Flush eyes with running water for several minutes, while keeping the eyelids wide open.
- If eye irritation persists, consult a specialist.

4.3. Skin contact

- Cool skin rapidly with cold water after contact with hot polymer.
- Do not peel polymer from the skin.
- Obtain medical attention.

4.4. Ingestion

- Never give anything by mouth to an unconscious person.
- If a large amount is swallowed, get medical attention.

5. FIREFIGHTING MEASURES

5.1. Suitable extinguishing media

- powder

- Foam
- Water
- Water spray
- Carbon dioxide (CO₂)

5.2. Extinguishing media which shall not be used for safety reasons

- None.

5.3. Special exposure hazards in a fire

- Combustible material
- In a fire, the polymer melts, producing droplets which may propagate fire.
- Once started, a fire will tend to self extinguish (see section 9).
- Risk of dust explosion.
- Heating can release hazardous gases.

5.4. Hazardous decomposition products

- Carbon monoxide
- The release of other hazardous decomposition products is possible.
- Carbon dioxide (CO₂)
- Gaseous hydrogen fluoride (HF).

5.5. Special protective equipment for firefighters

- In the event of fire, wear self-contained breathing apparatus.
- Fire fighters must wear fire resistant personnel protective equipment.

5.6. Other information

- Avoid dust formation.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. Advice for non-emergency personnel

- Refer to protective measures listed in sections 7 and 8.

6.1.2. Advice for emergency responders

- Sweep up to prevent slipping hazard.
- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.

6.2. Environmental precautions

- Should not be released into the environment.
- The product should not be allowed to enter drains, water courses or the soil.
- In case of accidental release or spill, immediately notify the appropriate authorities if required by Federal, State/Provincial and local laws and regulations.

6.3. Methods and materials for containment and cleaning up

- Sweep up and shovel into suitable containers for disposal.
- Avoid dust formation.
- Keep in properly labelled containers.

- Keep in suitable, closed containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".

7. HANDLING AND STORAGE

7.1. Handling

- Take measures to prevent the build up of electrostatic charge.
- Ensure all equipment is electrically grounded before beginning transfer operations.
- Use only equipment and materials which are compatible with the product.
- To avoid thermal decomposition, do not overheat.

7.2. Storage

- Keep container closed.
- Keep away from heat and sources of ignition.

7.3. Other information

- Keep away from open flames, hot surfaces and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.
- Do not smoke.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure Limit Values

Particles not otherwise specified (PNOS)

- US. ACGIH Threshold Limit Values 2007
time weighted average = 3 mg/m³
Remarks: as respirable particles
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
Permissible exposure limit = 5 mg/m³
Remarks: respirable dust fraction, All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
- US. ACGIH Threshold Limit Values 2010
time weighted average = 10 mg/m³
Remarks: Inhalable fraction
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006
Permissible exposure limit = 15 mg/m³
Remarks: Total dust, All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000
time weighted average = 15 millions of particles per cubic foot of air
Remarks: respirable dust fraction
- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000

time weighted average = 50 millions of particles per cubic foot of air

Remarks: Total dust

- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000

time weighted average = 5 mg/m³

Remarks: respirable dust fraction

- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000

time weighted average = 15 mg/m³

Remarks: Total dust

- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989

time weighted average = 5 mg/m³

Remarks: respirable dust fraction

- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989

time weighted average = 15 mg/m³

Remarks: Total dust

Carbon

- US. ACGIH Threshold Limit Values 2006

TWA = 2 mg/m³

Remarks: Respirable fraction

- US. ACGIH Threshold Limit Values 03 2013

time weighted average = 2 mg/m³

Remarks: respirable dust fraction

- US. OSHA Table Z-3 (29 CFR 1910.1000) 2000

time weighted average = 15 millions of particles per cubic foot of air

- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006

Permissible exposure limit = 5 mg/m³

Remarks: respirable dust fraction

- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) 02 2006

Permissible exposure limit = 15 mg/m³

Remarks: Total dust

- US. OSHA Table Z-1-A (29 CFR 1910.1000) 1989

time weighted average = 2.5 mg/m³

Remarks: Respirable dust

- US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A 06 2008

time weighted average = 2.5 mg/m³

Remarks: Respirable dust

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SAEL = Solvay Acceptable Exposure Limit, Time Weighted Average for 8 hour workdays. No Specific TLV STEL (Short Term Exposure Level) has been set. Excursions in exposure level may exceed 3 times the TLV TWA for no more than a total of 30 minutes during a workday and under no circumstances should they exceed 5 times the TLV TWA.

8.2. Engineering controls

- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Provide appropriate exhaust ventilation at places where dust is formed.
- Refer to protective measures listed in sections 7 and 8.

8.3. Personal protective equipment

8.3.1. Respiratory protection

- In case of insufficient ventilation, wear suitable respiratory equipment.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Use only respiratory protection that conforms to international/ national standards.
- Use NIOSH approved respiratory protection.
- Respirator with combination filter for vapour/particulate (EN 141).

8.3.2. Hand protection

- When handling hot material, use heat resistant gloves.

8.3.3. Eye protection

- Safety glasses with side-shields
- Dust proof goggles, if dusty.

8.3.4. Skin and body protection

- Long sleeved clothing

8.3.5. Hygiene measures

- When using, do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General Information

Appearance	:	pellets, powder
Colour	:	black
Odour	:	odourless

9.2. Important health safety and environmental information

pH	:	Remarks: not applicable
Boiling point/boiling range	:	Remarks: not applicable
Flash point	:	Remarks: not applicable
Flammability	:	Remarks: The product is not flammable.
Explosive properties	:	<u>Explosion danger</u> Remarks: Risk of dust explosion.
Vapour pressure	:	Remarks: not applicable
Relative density / Density	:	Remarks: no data available
Solubility(ies)	:	Water Remarks: negligible
Partition coefficient:	:	Remarks: not applicable

n-octanol/water

9.3. Other data

: 280 °C (536 °F)
Remarks: Softening point

Decomposition temperature : *Remarks:* no data available

10. STABILITY AND REACTIVITY

10.1. Stability

- Stable under normal conditions.
- Hazardous Polymerisation/Polymerization: no

10.2. Conditions to avoid

- Heat, flames and sparks.
- To avoid thermal decomposition, do not overheat.
- Avoid dust formation.

10.3. Materials to avoid

- no data available

10.4. Hazardous decomposition products

- Carbon monoxide, The release of other hazardous decomposition products is possible., Carbon dioxide (CO₂), Gaseous hydrogen fluoride (HF).

11. TOXICOLOGICAL INFORMATION

Toxicological data

Chronic toxicity

- *Remarks:* This product may contain carbon black. Carbon black has been shown to cause lung tumors in rats at high exposure concentrations. These concentrations exceed the capacity of the lung to clear the carbon black particles, thus resulting in significant toxicity. The International Agency for Research on Cancer (IARC) has evaluated carbon black found it to be possibly carcinogenic to humans. (Group 2B).

Remarks

- The product is biologically inert.
- Because the components are encapsulated in the resin and may not be bioavailable in the body, they may not exert the above mentioned health effects.
- Product dust may be irritating to eyes, skin and respiratory system.
- Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.
- The thermal decomposition vapours of fluorinated polymers may cause polymer fume fever with flu-like symptoms in humans, especially when smoking contaminated tobacco.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity effects

Acute toxicity

- Remarks: no data available

Chronic toxicity

- Remarks: no data available

12.2. Mobility

- Remarks: no data available

12.3. Persistence and degradability

Abiotic degradation

- Result: no data available

Biodegradation

- Remarks: no data available

12.4. Bioaccumulative potential

- Result: no data available

12.5. Other adverse effects

- no data available

12.6. Remarks

- The product is biologically inert.
- Ingestion of solids may cause harm to wildlife due to intestinal mechanical blockage or starvation from false feeling of satiation.

13. DISPOSAL CONSIDERATIONS

13.1. Waste from residues / unused products

- Do not dump into any sewers, on the ground, or into any body of water. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations.
- Waste characterizations and compliance with applicable laws and regulations are the responsibility of the waste generator.

13.2. Packaging treatment

- Empty containers.
- Dispose of as unused product.
- For unused and uncontaminated product, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device or industrial landfill.

13.3. RCRA Hazardous Waste

- Listed RCRA Hazardous Waste (40 CFR 302) - No

14. TRANSPORT INFORMATION

- Sea (IMO/IMDG)
- not regulated
- Air (ICAO/IATA)
- not regulated
- U.S. Dept of Transportation
- not regulated
- It is recommended that ERG Guide number 111 be used for all non-regulated material.
- Canadian Transportation of Dangerous Goods
- not regulated

15. REGULATORY INFORMATION

15.1. Inventory Information

USA. Toxic Substances Control Act (TSCA)	: -	Listed on inventory.
EU list of existing chemical substances (EINECS)	: -	In compliance with inventory.
Japan. Inventory of Existing & New Chemical Substances (ENCS)	: -	In compliance with inventory.
Australia. Inventory of Chemical Substances (AICS)	: -	One or more components not listed on inventory.
Korean Existing Chemicals List (ECL)	: -	In compliance with inventory.
Canada. Domestic Substances List (DSL)	: -	In compliance with inventory.
Philippine. Inventory of Chemicals and Chemical Substances (PICCS)	: -	One or more components not listed on inventory.
Inventory of Existing Chemical Substances (China) (IECS)	: -	In compliance with inventory.

15.2. Other regulations

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A)

- not regulated.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

- not regulated.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

- not regulated.

US. Pennsylvania Worker and Community Right-to-Know Law (34 Pa. Code Chap. 301-323)

Components	CAS-No.	Concentration
Polytetrafluoroethylene	9002-84-0	>= 12.0 - <= 20.0 %
Carbon	7440-44-0	>= 10.0 - <= 30.0 %

15.3. Classification and labelling

EC Label - According to Regulation (EC) 1272/2008, as amended

No labelling

16. OTHER INFORMATION

Further information

- Update

Material Safety Data Sheets contain country specific regulatory information; therefore, the MSDS's provided are for use only by customers of the company mentioned in section 1 in North America. If you are located in a country other than Canada, Mexico or the United States, please contact the Solvay Group company in your country for MSDS information applicable to your location.

The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product).

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Material Safety Data Sheet
North American Version

TORLON® 4645

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