



TERRAFUSE INC.

Safety Data Sheet TF 90 Part A

SECTION 1: Identification

1.1 Product identifier

Product name TF 90 Part A

1.2 Other means of identification

TF 90 Slow Polyaspartic, TF 90 Fast Polyaspartic, TF 90 Polyaspartic

1.4 Supplier's details

Name Terrafuse Inc.
Address 1325 Hastings Cres. SE
Calgary AB T2G 4C8
Canada

Telephone 403-243-3000
Fax 403-243-3050
email info@terrafuse.ca

1.5 Emergency phone number(s)

CANUTEC 1-888-CANUTEC (226-8832)
CHEMTREC USA 800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Skin corrosion/irritation, Cat. 2
- Sensitization, respiratory, Cat. 1
- Flammable liquids, Cat. 2
- Acute toxicity, inhalation, Cat. 4
- Specific target organ toxicity (single exposure), Cat. 3

2.2 GHS label elements, including precautionary statements

Pictogram



Signal word

Danger

Safety Data Sheet

TF 90 Part A

Hazard statement(s)

H225	Flammable liquid and vapor
H315	Causes skin irritation
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing fume/gas/mist/vapors/spray.
P264	Wash hands and forearms thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/eye protection/face protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER or doctor if you feel unwell.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403+P233	Store in a well-ventilated place. Keep container tightly closed. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local regulations concerning chemical disposal.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

1. Homopolymer of Hexamethylene Diisocyanate

Concentration 60 - 80 % (weight), Trade secret
CAS no. 28182-81-2

- Skin corrosion/irritation, Cat. 2
- Sensitization, respiratory, Cat. 1
- Acute toxicity, inhalation, Cat. 4
- Sensitization, skin, Cat. 1
- Specific target organ toxicity (single exposure), Cat. 3

2. tert-Butyl acetate

Concentration 15 - 40 % (weight), Trade secret
EC no. 208-760-7
CAS no. 540-88-5

Safety Data Sheet

TF 90 Part A

Index no. 607-026-00-7

- Flammable liquids, Cat. 2
- Acute toxicity, inhalation, Cat. 4
- Specific target organ toxicity (single exposure), Cat. 3

H225 Highly flammable liquid and vapor

Trade secret statement (OSHA 1910.1200(i))

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	Consult a physician/doctor if necessary. Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Show this material safety data sheet to the doctor in attendance. Notes to Physician Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.
If inhaled	If overcome by exposure, remove victim to fresh air immediately. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Give oxygen or artificial respiration as needed. Call a physician.
In case of skin contact	Remove contaminated clothing and shoes. Flush affected area with large amounts of water and soap. Get medical advice/attention if patient feels unwell, or irritation develops. Wash clothing before reuse.
In case of eye contact	Immediately flush with plenty of running water for at least 15 minutes, occasionally holding eyelids apart. If eye irritation persists: Get medical advice/attention.
If swallowed	If large quantity swallowed, give lukewarm water (pint/ 1/2 liter) if victim completely conscious/alert. Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.
Personal protective equipment for first-aid responders	Use gloves, and eye protection if potential for chemical exposure exists. Remove victim to fresh air, and remove any contaminated clothing.

4.2 Most important symptoms/effects, acute and delayed

Inhalation may cause lung irritation and other toxic symptoms. This product may cause skin sensitization (allergy). May cause allergy or asthma symptoms or breathing difficulties if inhaled. May be harmful if swallowed and enters

Safety Data Sheet

TF 90 Part A

airways. May be harmful if swallowed. Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Treat symptoms as they arise.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

SMALL FIRE: Use dry chemicals, CO₂, water spray or alcohol-resistant foam. LARGE FIRE: Use water spray, water fog or alcohol-resistant foam.

5.2 Specific hazards arising from the chemical

Releases flammable vapors below normal ambient temperatures.

When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined.

Flammable vapors may be heavier than air and travel long distances along the ground before igniting and flashing back to vapor source.

Move containers from fire area if it can be done without risk.

Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.

Cool containers with flooding quantities of water until well after fire is out.

Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.

Always stay away from tanks engulfed in fire.

For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

During a fire, irritating and highly toxic gases such as carbon monoxide, oxides of nitrogen, isocyanate vapor and traces of hydrogen cyanide may be generated by thermal decomposition or combustion.

5.3 Special protective actions for fire-fighters

Wear full protective clothing and self-contained breathing apparatus. Use water spray to keep fire exposed containers cool.

Further information

Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. For large-scale spills, ensure full personal protection is worn. Keep unauthorized personnel from the spillage area. Note this product may produce a slip hazard. Ventilate area and remove sources of ignition. Follow prescribed procedures for responding to large spills and reporting to authorities.

6.2 Environmental precautions

Prevent this product from entering water courses or drainage system. Do not flush to sewer. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Extremely flammable. Eliminate all sources of ignition. All equipment used when handling this product must be grounded. Do not touch or walk through spilled material. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors.

Safety Data Sheet

TF 90 Part A

Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. Dike large spills and place materials in salvage containers. Water spray may reduce vapor; but may not prevent ignition in closed spaces.
For small quantities, wipe off with cloth or paper, and wash affected area with water and detergent.
For large quantities, recover by taking up mechanically or with and inert absorbent material such as waste cloth, dry sand or soil.
Wash residue with water and detergent.

Reference to other sections

See Sections 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only non-sparking tools. Extinguish all ignition sources. Carefully vent any internal pressure before removing closure. Containers must be properly grounded before beginning transfer. Handle empty containers with care; vapor/residue may be flammable. All equipment must conform to applicable electrical code. This material may attack some forms of plastics, rubbers, and coatings. Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair. Check atmosphere for explosiveness and oxygen deficiencies. Wear recommended personal protective equipment.

Observe precautions pertaining to confined space entry. Do not breathe vapors or spray mist. The routine use of neutral or weak acid type of hand cleaner and regular cleaning of working surfaces, gloves etc. will help minimize the possibility of a skin reaction. This product reacts slowly with water to form CO₂ gas. This gas can cause sealed containers to expand and possibly rupture explosively.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed. Store in a cool, dry, well-ventilated area. Keep away from sources of ignition. This product reacts with water to form CO₂ gas. Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents.

Specific end use(s)

To be mixed with TF 90 Part B only, and used as a concrete coating.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. tert-Butyl-acetate (CAS: 540-88-5)

PEL (Inhalation): 200 ppm (OSHA)

OSHA Annotated Table Z-1, www.osha.gov

PEL (Inhalation): 950 mg/m³ (OSHA)

OSHA Annotated Table Z-1, www.osha.gov

PEL (Inhalation): 200 ppm (Cal/OSHA)

OSHA Annotated Table Z-1, www.osha.gov

REL (Inhalation): 200 ppm (NIOSH)

OSHA Annotated Table Z-1, www.osha.gov

2. Hexane, 1,6-diisocyanato-, homopolymer (CAS: 28182-81-2)

TWA (Dermal): 0.5mg/m³; USA

STEL (Dermal): 1.0mg/m³ (15min); USA

8.2 Appropriate engineering controls

Safety Data Sheet

TF 90 Part A

Both local exhaust and good general room ventilation must be provided not only to control exposure but also to prevent formation of flammable mixtures. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Avoid eye contact by wearing safety goggles. Wear appropriate protective eyeglasses or chemical safety goggles as described by Canadian CSA Eye Protection Standard Z94.3-M1982, Industrial Eye and Face Protectors.

Skin protection

Avoid skin contact by wearing chemical resistant gloves (Viton is recommended). Follow OSHA's hand protection regulations in 29 CFR 1910.138.

Body protection

Where more extensive contact may occur, wear suitable protective clothing (e.g. apron, sleeves and boots). Follow Canadian CSA Foot Protection Standard Z195-M1984, Protective Footwear.

Respiratory protection

Wear respiratory protective equipment (organic vapor mask) if exposure to vapors is foreseen. Follow the Canadian CSA Respiratory Standard Z94.4-93-02.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance/form (physical state, color, etc.)	Clear Liquid
Odor	Camphor-like odor
Odor threshold	8 ppb
pH	Not available
Melting point/freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	4 °C at 1013.0 hPa (759.8 mm Hg)
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable
Upper/lower flammability limits	~ 1.26 vol%
Upper/lower explosive limits	~ 6.88 vol%
Vapor pressure	55.995 hPa at 20 °C
Vapor density	Not available
Relative density	Not available
Solubility(ies)	Not available
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	426 °C(ASTM method)
Decomposition temperature	Not available
Viscosity	Not available
Explosive properties	Not explosive
Oxidizing properties	Not considered an oxidizing agent.

Other safety information

Additional properties may be listed in Sections 2 and 5.

SECTION 10: Stability and reactivity

10.1 Reactivity

Safety Data Sheet

TF 90 Part A

Not available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous decomposition products when stored and handled correctly. Hazardous polymerization does not occur.

10.4 Conditions to avoid

Heat, sparks, open flame, other ignition sources, and oxidizing conditions. Sunlight and temperatures exceeding 40°C. Moisture.

10.5 Incompatible materials

Exothermic reaction with amines and alcohols. Reacts slowly with water forming CO₂ with risk of bursting closed containers, owing to increase of pressure. Some plastics. Acids. Alkalies. Nitrates. Strong oxidizing agents.

10.6 Hazardous decomposition products

Under hot, acidic conditions, the decomposition products are isobutylene and acetic acid. May form carbon monoxide, oxides of nitrogen, isocyanates, and traces of hydrogen cyanide if heated to decomposition.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Product is not classified.

LD₅₀ >2500 mg/kg (oral, rat), based on available data, the classification criteria are not met.

LD₅₀ >2000 mg/kg (dermal, rat), based on available data, the classification criteria are not met.

Inhalation, vapor: no product data, classification not possible.

Based on acute toxicity values, not classified.

May be harmful if swallowed. High doses may cause CNS depression (fatigue, dizziness and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).

Skin corrosion/irritation

Product classified as Skin Irritant Category 2.

Serious eye damage/irritation

Product is not classified. Based on available data, the classification criteria are not met. Moderate eye irritation.

Respiratory or skin sensitization

Classified

Harmful if inhaled.

High vapor concentrations may cause CNS stimulation (increased activity, shaking, tremors) and/or depression (fatigue, dizziness, and possibly loss of concentration, with collapse, coma and death in cases of severe over-exposure).

LC₅₀: 12.52 mg/l

Exposure time: 4 HOURS

Method: Calculation method

Product is classified as Respiratory Sensitizer Category 1.

Skin sensitization: Based on available data for the product, the classification criteria are not met.

Germ cell mutagenicity

Product is not classified. No product data, classification not possible.

Carcinogenicity

Safety Data Sheet

TF 90 Part A

Product is not classified. No product data, classification not possible.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

Product is not classified. No product data, classification not possible.

STOT-single exposure

Classified, May cause respiratory irritation. May cause drowsiness or dizziness.

Exposure routes: Inhalation, Ingestion

Target Organs: Central nervous system, Respiratory system

STOT-repeated exposure

Based on repeated exposure toxicity values, not classified.

Aspiration hazard

Not classified

May be harmful if swallowed and enters airways.

Additional information

Route(s) of entry/exposure: Inhalation, Skin, Eye, Ingestion

Potential Health Effects

Inhalation

Acute (Immediate): May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Chronic (Delayed): May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin

Acute (Immediate): Causes skin irritation.

Chronic (Delayed): Causes skin irritation.

SECTION 12: Ecological information

Toxicity

Acute aquatic toxicity:

Classified, Harmful to aquatic life.

Chronic aquatic toxicity:

Not classified, based on readily biodegradability and low acute toxicity.

Killifish, LC50 > 100 mg/L (96h).

Daphnia magna, EC50 > 100 mg/L (48h).

Algae, ErC50 > 100 mg/L (72h, velocity method).

Persistence and degradability

Product data not available. Tert-butyl acetate component: Biodegradation: 50 % Inherently biodegradable.
(After 28 days in a ready biodegradability test)

Bioaccumulative potential

Not available

Mobility in soil

Not available

Results of PBT and vPvB assessment

Safety Data Sheet

TF 90 Part A

Not available

Other adverse effects

No other information available

SECTION 13: Disposal considerations

Disposal of the product

Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Comply with applicable federal/national, state/provincial, and local regulations.

Disposal of contaminated packaging

Empty containers retain this product and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind or exposure such containers to heat, flame, sparks, static, electricity or other sources of ignition. The containers should be disposed of according to local regulations.

Waste treatment

Contaminated product, soil, water, container residues and spill cleanup materials may be hazardous wastes. Comply with applicable federal/national, state/provincial, and local regulations.

Sewage disposal

Do not dispose of in drains.

SECTION 14: Transport information

DOT (US)

UN Number: 1123

Class: 3

Packing Group: II

Proper Shipping Name: Butyl Acetates

Reportable quantity (RQ): 12,500 lbs.

Marine pollutant: No

Poison inhalation hazard:

IMDG

UN Number: 1123

Class: 3

Packing Group: II

Proper Shipping Name: Butyl Acetates

Marine pollutant: No

EMS Number 1: F-E

EMS Number 2: S-D

Marine Pollutant: No

IATA

UN Number: 1123

Class: 3

Packing Group: II

Proper Shipping Name: Butyl Acetates

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Massachusetts Right To Know Components

Chemical name: tert-Butyl acetate

Safety Data Sheet

TF 90 Part A

CAS number: 540-88-5

New Jersey Right To Know Components

Common name: tert-BUTYL ACETATE

CAS number: 540-88-5

Pennsylvania Right To Know Components

Chemical name: Acetic acid, 1,1-dimethylethyl ester

CAS number: 540-88-5

SECTION 16: Other information

Date of revision: March 26, 2019

Updates were made to the components section

16.1 Further information/disclaimer

NOTE: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to chemicals contained in our products.

16.2 Preparation information

Prepared by:

Terrafuse Inc.

www.terrafuse.ca

1-855-243-8080