



1 Identification

- **Product identifier**
- **Product name: Tolonate™ X FD 90 B**
- **Relevant identified uses of the substance or mixture and uses advised against**
 Relevant identified uses :
 Manufacture of substances:
 Formulations:
 Manufacture of paints and varnishes
 Industrial use:
 Professional use:
 Uses advised against:
 Consumer use:
 For further information, refer to section 16.
- **Application of the substance / the mixture**
 For further information, refer to the product technical data sheet.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 Vencorex US, Inc.
 6213 Highway 332 E
 Freeport TX 77541
 USA
 Tel.: +1 979 238 8660
 Fax: +1 979 233 3218
 www.vencorex.com
- **Information department:** productinfo@vencorex.com
- **Emergency telephone number:**
 FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT:
 CHEMTREC 800-424-9300 within the United States or 703-527-3887 for international collect calls.
 Vencorex Chemtrec Customer Number: CCN227304
- **Chemical Name or Synonym:** Aliphatic polyisocyanate in solution.

2 Hazard(s) identification

- **Classification of the substance or mixture**
 Flam. Liq. 3 H226 Flammable liquid and vapor.
 Acute Tox. 4 H332 Harmful if inhaled.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements**
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**


 GHS02 GHS07
- **Signal word** Warning
- **Hazard-determining components of labeling:**
 hexamethylene diisocyanate, oligomers
 n-butyl acetate
 hexamethylene-di-isocyanate
- **Hazard statements**
 H226 Flammable liquid and vapor.
 H332 Harmful if inhaled.

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H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

• **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P302+P352 IF ON SKIN: Wash with plenty of water.

P370+P378 In case of fire: Use for extinction: CO₂, powder or water spray.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

• **Hazard description:**

WARNING! FLAMMABLE LIQUID. HARMFUL IF INHALED. MAY CAUSE SKIN, EYE AND RESPIRATORY TRACT IRRITATION. POSSIBLE SENSITIZER. REACTS WITH COMMON MATERIALS INCLUDING WATER, ALCOHOLS, BASES AND AMINES RELEASING LARGE AMOUNTS OF CARBON DIOXIDE.

• **Classification system:**

• **NFPA ratings (scale 0 - 4)**



Health = 2
Fire = 2
Reactivity = 1

• **HMIS-ratings (scale 0 - 4)**

HEALTH	2
FIRE	2
REACTIVITY	1

Health = 2
Fire = 2
Reactivity = 1

• **Other hazards**

On contact with water carbon dioxide is released.

This product does not contain any ingredient designated by IARC, NTP, ACGIH or OSHA as probable or suspected human carcinogens. Asthmatic sensitization can occur from a single large inhalation exposure or from repeated lower inhalation exposures. Strict observation of exposure limits is essential (see Section 8).

• **Results of PBT and vPvB assessment**

• **PBT:** Not applicable.

• **vPvB:** Not applicable.

3 Composition/information on ingredients

• **Chemical components:**

CAS: 28182-81-2 Polymer	hexamethylene diisocyanate, oligomers	≈ 90%
CAS: 123-86-4 EINECS: 204-658-1	n-butyl acetate	≈ 10%
CAS: 822-06-0 EINECS: 212-485-8	hexamethylene-di-isocyanate	< 0.5%

4 First-aid measures

• **Description of first aid measures**

• **After inhalation:**

Move the person away from the contaminated area.

Fresh air and rest.

Seek immediate medical advice.

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Show this sheet to the doctor.

- **After skin contact:**

Immediately remove any clothing soiled by the product.

Wash with soap and water.

Wash immediately and thoroughly for a prolonged period (at least 15 minutes).

In case of inflammation (redness, irritation, ...) obtain medical attention.

Place contaminated clothing in a sealed bag for disposal.

- **After eye contact:**

Immediately rinse with plenty of running water for a prolonged period, (at least 15 minutes) while keeping the eyes wide open.

If irritation persists, consult a doctor.

- **After swallowing:**

NEVER attempt to induce vomiting.

Do not give anything to drink.

If necessary seek medical advice.

- **Most important symptoms and effects, both acute and delayed**

No further relevant information available.

- **Danger**

Skin contact may aggravate existing skin disease. Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis.

- **Indication of any immediate medical attention and special treatment needed**

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Treat symptomatically. No specific antidote available.

5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

Foam

Powders

Carbon dioxide

Dry chemical

- **For safety reasons unsuitable extinguishing agents:** Water

- **Special hazards arising from the substance or mixture**

Flammable.

During combustion toxic vapors are released.

Under fire conditions, corrosive fumes are emitted: oxides of nitrogen oxides of carbon.

Reacts with water releasing large amounts of carbon dioxide which may cause pressure build-up in confined spaces.

- **Advice for firefighters**

- **Protective equipment:**

Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

- **Additional information**

Stay upwind.

Evacuate the personnel away from the fumes.

In case of fire close by:

Cool down the containers/equipment exposed to heat with a water spray. Ensure that there is NO direct contact between the water and the product.

Do not breathe fumes.

Do NOT attempt to fight the fire without suitable protective equipment.

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6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Avoid contact with skin and eyes.
 NO flames, NO sparks. Eliminate all sources of ignition.
 Local evacuation is necessary (for people in close proximity to the spillage area).
 Do NOT approach from DOWNWIND.
 Do NOT attempt to take action WITHOUT suitable protective equipment.
 Self-contained breathing apparatus.
 Full impermeable protective clothing and equipment.
 Mark out the contaminated area with signs and prevent access to unauthorized personnel.
 Keep people at a distance and stay upwind.

- **Environmental precautions:**

Contain the spilled material by binding.
 Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Pump up the product into a spare container suitably labelled.
 Pump any free liquid into a closed but not sealed container to allow for the escape of any CO₂ that forms. Sealing the container may lead to rupture as any contaminated isocyanate reacts.
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).
 Wash contaminated area with large amounts of water.
 Recover the cleaning water for subsequent disposal.
 Dispose contaminated material as waste according to item 13.
 Do not flush to drain. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

- **Reference to other sections**

See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**

Ground the equipment.
 Keep away from heat and sources of ignition.
 Ensure good ventilation/aspiration at the workplace.
 Avoid contact with water or humidity.
 Avoid any direct contact with the product.
 Any measure to eliminate exposure should be considered.

- **Information about protection against explosions and fires:**

Protect from heat.
 Keep ignition sources away - Do not smoke.

- **Conditions for safe storage, including any incompatibilities**

- **Storage:**

The floor of the depot should be impermeable and designed to form a water-tight basin.
 Store receptacle in a well ventilated area.
 Store in cool, dry conditions in well sealed receptacles.

- **Requirements to be met by storerooms and receptacles:**

Store only in unopened original receptacles.
 - Metallic drums.
 - Storage tank with a dry nitrogen blanket.
 Suitable material for receptacles and pipes: Aluminium.
 Suitable material for receptacles and pipes: steel or stainless steel.
 Unsuitable material for receptacle: Copper.
 Unsuitable material for receptacle: Polystyrene.
 Unsuitable material for receptacle: Tin

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- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
Exposure limits represent regulated or recommended worker breathing zone concentrations measured by validated sampling and analytical methods, meeting the regulatory requirements. The following limits apply to this material, where, if indicated, S=skin and C=ceiling limit:
The recommended limits SHOULD NOT be exceeded.

822-06-0 hexamethylene-di-isocyanate

REL	Short-term value: C 0.14* mg/m ³ , C 0.02* ppm Long-term value: 0.035 mg/m ³ , 0.005 ppm *10-min
TLV	0.034 mg/m ³ , 0.005 ppm

28182-81-2 hexamethylene diisocyanate, oligomers

TLV	Short-term value: 1 mg/m ³
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123-86-4 n-butyl acetate

REL	Short-term value: 950 mg/m ³ , 200 ppm Long-term value: 710 mg/m ³ , 150 ppm
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- **TLV (Threshold Limit Value established by ACGIH)**

822-06-0	hexamethylene-di-isocyanate	0.005 ppm
123-86-4	n-butyl acetate	150 ppm

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Ensure good ventilation of the work station.
Shower or take a bath at the end of work.
Keep away from foodstuffs, beverages and feed.
Store protective clothing separately.
Immediately remove all soiled and contaminated clothing.
Safety shower.
Eye wash.
- **Breathing equipment:**
When using a spray-gun, wear: Self-contained breathing apparatus.
In the event of insufficient ventilation: Self-contained breathing apparatus.
When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.
- **Protection of hands:**



Protective gloves

- **Material of gloves**
Rubber gloves
Protective gloves must be chosen according to the function of the work station: other chemicals which may be handled, physical protection necessary (resistance to cutting, puncture, heat), dexterity required.
The selection of gloves must take into account the extent and duration of use at the workstation.
- **Eye protection:**
Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the

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particular use intended for this material.

Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area.



Safety glasses

- **Body protection:** Protective work clothing

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Liquid Clear
Color:	Colourless to pale yellow.
· Odor:	Solvent-like

- **pH-value:** Not applicable (reacts with water).

- **Change in condition**

Melting point/Melting range:	Not applicable.
Boiling point/Boiling range:	125 °C (257 °F)

- **Flash point:** 48 °C (118 °F)

- **Ignition temperature:** 425 °C (797 °F)

- **Explosion limits:** vapours Vol %

- **Lower:** 1.7 Vol %

- **Upper:** 7.6 Vol %

- **Oxidizing properties** Non oxidizing material according to EC criteria.

- **Vapor pressure at 20 °C (68 °F):** 11.3 hPa (8 mm Hg)

- **Density at 25 °C (77 °F):** 1.12 g/cm³ (9.346 lbs/gal)

- **Solubility in / Miscibility with**

Water:	Reacts.
· Ketones:	Soluble
· aromatic hydrocarbons:	Soluble
· esters :	Soluble

- **Segregation coefficient (n-octanol/water):** Hexamethylene diisocyanate oligomers:
Not applicable (reacts with water and/or octanol).

- **Viscosity:**
- Dynamic at 25 °C (77 °F):** 2000 mPa.s

- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.

- **Chemical stability**

- **Thermal decomposition / conditions to be avoided:** Stable at ambient temperature.

- **Possibility of hazardous reactions**

Reacts with alcohols.
Reacts with amines.

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- Reacts with bases
 Reacts with strong acids
 Reacts with water and aqueous solutions.
 Reacts with strong oxidizing agents
 with a great release of CO₂, and hence a risk of a pressure build-up in confined areas, and forms an insoluble solid precipitate.
- **Conditions to avoid**
 extreme heat
 open flame
 moisture
 static electricity
 ignition sources
 - **Incompatible materials:** No further relevant information available.
 - **Hazardous decomposition products:**
 On thermal decomposition (pyrolysis) releases:
 Toxic gases.
 Carbon oxides (CO + CO₂)
 Nitrogen oxides (NO_x)

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values:**

28182-81-2 hexamethylene diisocyanate, oligomers

Oral	LD50	> 5000 mg/kg (rat) (OECD 401)
Dermal	LD50	> 2000 mg/kg (rabbit) (EPA 40 CFR 798)

123-86-4 n-butyl acetate

Dermal	LD50	>5000 mg/kg (rbt)
Inhalative	LC50/4h	>21.0 mg/l (rat) (OECD 403)

822-06-0 hexamethylene-di-isocyanate

Oral	LD50	746 mg/kg (rat) (OECD 401)
Dermal	LD50	> 7000 mg/kg (rat) (OECD 402)
Inhalative	LC50/4h	0.124 mg/l (rat) (OECD 403)

128-37-0 Butylated hydroxytoluene

Oral	LD50	> 6000 mg/kg (rat) (OECD 401)
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- **Primary irritant effect:**
- **on the skin:** Not classified as irritating to skin.
- **on the eye:** Not classified as irritating to eyes.
- **Inhalation:** May cause respiratory irritation.

- **Additional toxicological information:**

- **Carcinogenic categories**

- **OSHA-Ca (Occupational Safety & Health Administration)**

Not listed.

- **Sensitization**

No pulmonary sensitisation was observed in guinea pigs after either intradermal injection or inhalation induction with HDI polyisocyanates.

There is no indication from reports in exposed workers that the substance can cause respiratory sensitisation, if the risk management measures are respected.

May cause sensitisation by skin contact.

- **Carcinogenicity:**

Not considered to be carcinogen.

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822-06-0 hexamethylene-di-isocyanate

Inhalative	NOAEC Carc	0.164 ppm (rat) (OECD 453)
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- **Mutagenicity:** Product is not considered to be genotoxic.
- **Reproductive toxicity:**
Is not considered hazardous to the reproduction.

822-06-0 hexamethylene-di-isocyanate

Inhalative	NOAEC Dvlp/Tera Tox	0.3 ppm (rat) (OECD 414)
	NOAEC Maternal Tox	0.005 ppm (rat) (OECD 414)
	NOEC Fert	0.3 ppm (rat) (OECD 422)

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

Hexamethylene diisocyanate oligomers :

The product does not have any known adverse effects on the aquatic organisms tested.

n-Butyl acetate :

The product does not have any known adverse effects on the aquatic organisms tested.

123-86-4 n-butyl acetate

EC50/72h	674.7 mg/l (Desmodesmus subspicatus)
LC50/96h (static)	62 mg/l (Brachydanio rerio)
	18 mg/l (fish) (Flow-through)

822-06-0 hexamethylene-di-isocyanate

EC0/48h (static)	≥ 89.1 mg/l (Daphnia magna) (EU C.2)
ErC50(0-72h) (static)	> 77.4 mg/l (Desmodesmus subspicatus) (EU C.3)
LC0/96h (static)	≥ 82.8 mg/l (Brachydanio rerio) (EU C.1)
NOEC/72h (static)	11.7 mg/l (Desmodesmus subspicatus) (EU C.3)

128-37-0 Butylated hydroxytoluene

EC50/48h	0.48 mg/l (Daphnia magna) (OECD 202)
EC50/72h	0.758 mg/l (algae) (QSAR)
LC50/96h	0.199 mg/l (fish) (QSAR)
NOEC	0.363 mg/l (algae)
	0.053 mg/l (fish)

- **Persistence and degradability**

822-06-0 hexamethylene-di-isocyanate

BOD28	42 % (bacteria) (EU C.4-D)
DT50	25 °C, 48.44 h (Photolysis) (AOPWIN v1.92)
	23 °C, 0.23 h (Hydrolysis) (ASTM D4666)

128-37-0 Butylated hydroxytoluene

BOD28	23.1 % (bacteria)
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- **Degree of elimination:**

Hexamethylene diisocyanate oligomers :

Not biodegradable.

n-Butyl acetate :

Readily biodegradable.

- **Behavior in environmental systems:**

- **Bioaccumulative potential**

Hexamethylene diisocyanate oligomers :

Ultimate destination of the product: SOIL and SEDIMENT.

n-Butyl acetate :

Ultimate destination of the product : AIR.

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Not bioaccumulable.

822-06-0 hexamethylene-di-isocyanate

BCF | 58 (fish) (BCFWIN v.2.17)

· Mobility in soil
822-06-0 hexamethylene-di-isocyanate

Log Koc | 5861 (.) (PCKOC v1.66)

· Ecotoxic effects:
· Behavior in sewage processing plants:
822-06-0 hexamethylene-di-isocyanate

EC50/3h (static) | 842 mg/l (bacteria) (OECD 209)

· Results of PBT and vPvB assessment
· PBT: Not applicable.

· vPvB: Not applicable.

· Other adverse effects No further relevant information available.

13 Disposal considerations

· Waste treatment methods
· Recommendation:

Discharging waste into rivers and drains is forbidden.

Incinerate at a licensed installation.

Disposal must be made according to federal, state and local regulations.

· Waste disposal key:

EPA Hazardous Waste - YES

EPA RCRA HAZARDOUS WASTE CODES: "I" Ignitable.

· Uncleaned packagings:

Contaminated packaging materials must be disposed of in the same manner as the product.

· Recommendation:

Allow it to drain thoroughly.

Thoroughly emptied and clean packagings may be recycled.

Disposal must be made according to official regulations.

14 Transport information

· UN Number
· DOT, ADR, IMDG, IATA

UN1866

· Proper shipping name (Technical Name)
· DOT, ADR, IMDG, IATA

RESIN SOLUTION

· Transport hazard class(es)
· DOT

· Class

3 Flammable liquids

· Label

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· ADR, IMDG, IATA


· Class 3 Flammable liquids
· Label 3

· Packing group
· DOT RESIN SOLUTION
· ADR, IMDG, IATA III

· Environmental hazards:
· Marine pollutant (environmentally hazardous mark) : No

· Special precautions for user Warning: Flammable liquids
· Hazard identification number : 30
· EMS Number: F-E,S-E

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

· Transport/Additional information: The above regulatory prescriptions are those valid on the date of publication of this sheet. However, given the possible evolution of transport regulations for hazardous materials and in the event of the SDS in your possession dating back more than 12 months, it is advisable to check their validity with your sales office.

· Passenger aircraft : Packing instruction : 355 - Maximum net quantity per package : 60 L

· Cargo aircraft : Packing instruction : 366 - Maximum net quantity per package : 220L

15 Regulatory information

- National legislation
- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara Section 312
 - Fire Hazard - Yes
 - Reactive Hazard - NO
 - Release of Pressure - NO
 - Acute Health Hazard - YES
 - Chronic Health Hazard - YES

· Section 355 (extremely hazardous substances):

None of the ingredient is listed.

· Section 313 (Specific toxic chemical listings):

 CERCLA RQ 100 lbs for 822-06-0
 CERCLA RQ 5000 lbs for 123-86-4

822-06-0	hexamethylene-di-isocyanate
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123-86-4	n-butyl acetate
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· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

Not listed.

· **IARC (International Agency for Research on Cancer)**

Not listed.

· **NTP (National Toxicology Program)**

Not listed.

· **Inventory status:**

· **Australian Inventory of Chemical Substances (AICS)**

All ingredients are listed.

· **Canadian Domestic Substance List (DSL)**

All ingredients are listed.

· **Canadian Non Domestic Substance List (NDSL)**

Not listed.

· **Chinese Chemical Inventory of Existing Chemical Substances (CIECS)**

All ingredients are listed.

· **European EINECS/ELINCS Listing**

All ingredients are listed.

· **Japan Existing and New chemical Substance List (ENCS)**

All ingredients are listed.

· **Korea Existing Chemical Inventory (KECI)**

All ingredients are listed.

· **Philippines Inventory of Chemicals and Chemical Substances (PICCS)**

All ingredients are listed.

· **TSCA listing**

All ingredients are listed.

· **Other regulations, limitations and prohibitive regulations**

· **State of California, Proposition 65:**

· **Chemicals known to cause cancer:**

Not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Not listed.

· **Chemicals known to cause developmental toxicity:**

Not listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Service HSE Vencorex

· **Date of preparation / last revision** 11/30/2016 / 5

· * **Data compared to the previous version altered.**