

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

SECTION 1. IDENTIFICATION

Product name : CONATHANE® EN-4 Part A Urethane Prepolymer

Manufacturer or supplier's details

Company : ELANTAS PDG, INC.
5200 North 2nd Street
St. Louis MO 63147

Telephone : (314) 621-5700

Visit our web site : www.elantas.com

E-mail address : Todd.Thomas@altana.com

Emergency telephone number : INFOTRAC - 1-800-535-5053

Recommended use of the chemical and restrictions on use

Recommended use : Polyurethane Intermediate

Restrictions on use : Refer to Section 15 for any restrictions that may apply

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Acute toxicity (Inhalation) : Category 3

Skin irritation : Category 2

Eye irritation : Category 2A

Respiratory sensitisation : Category 1

Skin sensitisation : Category 1

Carcinogenicity : Category 2

Reproductive toxicity : Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Precautionary statements

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H351 Suspected of causing cancer.
 H361 Suspected of damaging fertility or the unborn child.

: **Prevention:**

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P285 In case of inadequate ventilation wear respiratory protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Isocyanate Prepolymer

Hazardous components

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Component	CAS-No.	Concentration (%)
Toluene diisocyanate	584-84-9	>= 17 - < 18
2-Methyl-m-phenylene diisocyanate	91-08-7	>= 0.1 - < 1
6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	119-47-1	>= 0.1 - < 1

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
 Consult a physician.
 Show this safety data sheet to the doctor in attendance.
 Symptoms of poisoning may appear several hours later.
 Do not leave the victim unattended.
- If inhaled : Call a physician or poison control centre immediately.
 If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician.
 If on skin, rinse well with water.
 If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
 Remove contact lenses.
 Protect unharmed eye.
 Keep eye wide open while rinsing.
 If eye irritation persists, consult a specialist.
- If swallowed : Induce vomiting immediately and call a physician.
 Keep respiratory tract clear.
 Do not give milk or alcoholic beverages.
 Never give anything by mouth to an unconscious person.
 If symptoms persist, call a physician.
 Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- 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.

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
- Conditions for safe storage : Store under conditions specified on the product Technical Data Sheet to maintain product quality.
Prevent unauthorized access.
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Toluene diisocyanate	584-84-9	TWA	0.005 ppm	ACGIH
		STEL	0.02 ppm	ACGIH
		C	0.02 ppm 0.14 mg/m ³	OSHA Z-1
		TWA	0.005 ppm 0.04 mg/m ³	OSHA P0
		STEL	0.02 ppm 0.15 mg/m ³	OSHA P0
2-Methyl-m-phenylene diisocyanate	91-08-7	TWA	0.005 ppm	ACGIH
		STEL	0.02 ppm	ACGIH
		C	0.02 ppm 0.14 mg/m ³	OSHA Z-1
		TWA	0.005 ppm 0.04 mg/m ³	OSHA P0
		STEL	0.02 ppm 0.15 mg/m ³	OSHA P0

Engineering measures : Use with adequate ventilation.
 All application areas should be ventilated in accordance with applicable OSHA regulations. (29 CFR 1910.94)
 Isocyanates may be released during the curing process.
 Repeated overexposure to isocyanates can cause respiratory tract sensitization.

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Hand protection
 Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
 Tightly fitting safety goggles
 Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
 Choose body protection according to the amount and concentration of the dangerous substance at the work place.

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Hygiene measures : Avoid contact with skin, eyes and clothing.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Odour Threshold : No data available

pH : No data available

Melting point/freezing point : No data available

Initial boiling point and boiling range : No data available

Vapour pressure : No data available

Flash point : > 201 °F (> 94 °C)
Method: No information available.
Information taken from reference works and the literature.

Upper explosion limit : No data available

Lower explosion limit : No data available

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Relative vapour density : No data available

Relative Density/Specific Gravity : No data available

Density : 0.97 g/cm³ (77 °F (25 °C))

Solubility(ies)
Water solubility : No data available

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Auto-ignition temperature	:	No data available
Thermal decomposition	:	No data available
Viscosity	:	
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	> 22 mm ² /s (104 °F (40 °C))

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available
Hazardous decomposition products	:	Carbon monoxide in a fire. Nitrogen oxides in a fire. Isocyanates

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Acute toxicity****Product:**

Acute inhalation toxicity	:	Acute toxicity estimate : 2.83 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method
---------------------------	---	--

Components:**584-84-9 Toluene diisocyanate:**

Acute oral toxicity	:	LD50 (Rat): 5,800 mg/kg LD50 (Rat, male): 5,110 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50 (Rat): 14 ppm
Acute dermal toxicity	:	LD50 (Rabbit): > 9,400 mg/kg LD50 (Rabbit, male and female): > 9,400 mg/kg

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Method: OECD Test Guideline 402

91-08-7 2-Methyl-m-phenylene diisocyanate:

Acute oral toxicity : LD50 (Rat): 5,800 mg/kg

Acute inhalation toxicity : LC50 : Remarks: No data available

Acute dermal toxicity : LD50 : Remarks: No data available

Skin corrosion/irritation**Product:**

Remarks: May cause skin irritation and/or dermatitis.

Components:**584-84-9 Toluene diisocyanate:**

Species: Rabbit

Result: Moderate skin irritation

91-08-7 2-Methyl-m-phenylene diisocyanate:

Species: Rabbit

Result: Moderate skin irritation

119-47-1 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol:

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

GLP: yes

Serious eye damage/eye irritation**Product:**

Remarks: May cause irreversible eye damage.

Components:**584-84-9 Toluene diisocyanate:**

Species: Rabbit

Result: Eye irritation

91-08-7 2-Methyl-m-phenylene diisocyanate:

Species: Rabbit

Result: Eye irritation

119-47-1 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol:

Species: Rabbit

Result: No eye irritation

Method: OECD Test Guideline 405

GLP: yes

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Respiratory or skin sensitisation
Product:

Remarks: Causes sensitisation.

Components:
119-47-1 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol:

Test Type: Mouse Local Lymph Node assay (LLNA)

Exposure routes: Dermal

Species: Mouse

Method: OECD Test Guideline 429

Result: Does not cause skin sensitisation.

GLP: yes

Carcinogenicity
IARC

Group 2B: Possibly carcinogenic to humans

Toluene diisocyanate

584-84-9

2-Methyl-m-phenylene
diisocyanate

91-08-7

ACGIH

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

Reasonably anticipated to be a human carcinogen

Toluene diisocyanate

584-84-9

2-Methyl-m-phenylene
diisocyanate

91-08-7

Further information
Product:

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION
Ecotoxicity
Components:

584-84-9 Toluene diisocyanate:

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 133 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 12.5 mg/l
 Exposure time: 48 h
 Method: OECD Test Guideline 202
- Toxicity to algae : ErC50 (Chlorella vulgaris (Fresh water algae)): 4,300 mg/l
 Exposure time: 96 h
 Method: OECD Test Guideline 201
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1.1 mg/l
 Exposure time: 21 d
 End point: Reproduction
 Method: OECD Test Guideline 211
 GLP: yes
- 119-47-1 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol:**
- Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 5 mg/l
 Exposure time: 96 h
 Test Type: semi-static test
 Method: OECD Test Guideline 203
 GLP: yes
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 4.8 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202
 GLP: yes
- Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): > 5 mg/l
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201
 GLP: yes
- NOEC (Selenastrum capricornutum (green algae)): 1.3 mg/l
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201
 GLP: yes
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.34 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Method: OECD Test Guideline 211
 GLP: yes

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Persistence and degradability**Components:****584-84-9 Toluene diisocyanate:**

Biodegradability : Result: Not biodegradable

119-47-1 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol:Biodegradability : aerobic
Result: Not readily biodegradable.
Method: OECD Test Guideline 301C
GLP: yes**Bioaccumulative potential**

No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

EPA Hazardous Waste Code(s) : none

Waste from residues : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

SECTION 14. TRANSPORT INFORMATION
International Regulations
IATA-DGR

UN/ID No. : UN 2206
 Proper shipping name : Isocyanates, toxic, n.o.s.
 (Toluene diisocyanate)
 Class : 6.1
 Packing group : II
 Labels : Toxic
 Packing instruction (cargo aircraft) : 662
 Packing instruction (passenger aircraft) : 654

IMDG-Code

UN number : UN 2206
 Proper shipping name : ISOCYANATES, TOXIC, N.O.S.
 (TOLUENE DIISOCYANATE)
 Class : 6.1
 Packing group : II
 Labels : 6.1
 EmS Code : F-A, S-A
 Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations
49 CFR

UN/ID/NA number : UN 2206
 Proper shipping name :
 (Toluene diisocyanate)
 Class : 6.1
 Packing group : II
 Labels : Toxic
 Marine pollutant : no

SECTION 15. REGULATORY INFORMATION
EPCRA - Emergency Planning and Community Right-to-Know Act
US. EPA CERCLA Hazardous Substances (40 CFR 302)

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Toluene diisocyanate	584-84-9	100	566

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

SARA 304 - Emergency Release Notification

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Toluene diisocyanate	584-84-9	100	566

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

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Toluene diisocyanate	584-84-9	100	566

SARA 311/312 Hazards : Per the June 13, 2016 Federal Register notice, EPA harmonized the EPCRA 311/312 hazard categories with the 2012 OSHA hazard communication standard for classifying and labeling of chemicals (i.e. GHS). Please refer to Section 2 of the SDS to identify the appropriate hazard categories for reporting purposes.

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:

Toluene diisocyanate	584-84-9	17.6 %
2-Methyl-m-phenylene diisocyanate	91-08-7	.7 %

SARA 313 : This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Toluene diisocyanate	584-84-9	17.6 %
2-Methyl-m-phenylene diisocyanate	91-08-7	.7 %

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

Toluene diisocyanate	584-84-9	17.6 %
----------------------	----------	--------

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

Toluene diisocyanate	584-84-9	17.6 %
----------------------	----------	--------

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMII Intermediate or Final VOC's (40 CFR 60.489):

Toluene diisocyanate	584-84-9	17.6 %
----------------------	----------	--------

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

Non-volatile (Wt) : Refer to the product technical data sheet for VOC information.

US State Regulations
Massachusetts Right To Know

Toluene diisocyanate	584-84-9
2-Methyl-m-phenylene diisocyanate	91-08-7

Pennsylvania Right To Know

TDI/PBD Polymer	68951-56-4
Toluene diisocyanate	584-84-9
2-Methyl-m-phenylene diisocyanate	91-08-7
Benzoyl Chloride	98-88-4

New Jersey Right To Know

TDI/PBD Polymer	68951-56-4
Toluene diisocyanate	584-84-9
2-Methyl-m-phenylene diisocyanate	91-08-7

New Jersey Trade Secret Registry Number for the product (NJ TSRN) : Not Applicable

California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

TSCA : We certify that all of the components of this product are either listed on the TSCA Inventory or are not subject to the notification requirements per 40 CFR 720 30(h).

Section 4 / 12(b) : Not applicable

Section 5 : Not applicable

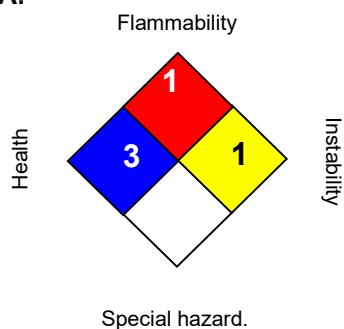
DSL : We certify that all of the components of this product are listed on the DSL.

CONATHANE® EN-4 Part A Urethane Prepolymer

Version 1

Revision Date 10/11/2017

Print Date 01/11/2018

SECTION 16. OTHER INFORMATION
Further information
NFPA:

HMIS III:

HEALTH	3*
FLAMMABILITY	1
PHYSICAL HAZARD	1

0 = not significant, 1 = Slight,
 2 = Moderate, 3 = High
 4 = Extreme, * = Chronic

Revision Date : 10/11/2017

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.