

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
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Print Date 02/23/2024

SECTION 1. IDENTIFICATION

Product name : URALANE® 5776 A US

Manufacturer or supplier's details

Company name of supplier : Huntsman Advanced Materials Americas LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)

Telephone : Non-Emergency: (800) 257-5547

E-mail address : Global_Product_EHS_AdMat@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Adhesives

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Acute toxicity (Inhalation) : Category 4
Skin irritation : Category 2
Eye irritation : Category 2A
Respiratory sensitisation : Category 1
Skin sensitisation : Category 1
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)
Specific target organ toxicity - repeated exposure (Inhalation) : Category 2

GHS label elementsHazard pictograms : 

Signal word : Danger

Hazard statements : H315 Causes skin irritation.

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
 Date of first issue: 10/17/2017

Print Date 02/23/2024

H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statements

: **Prevention:**

P260 Do not breathe mist or vapours.
 P264 Wash skin thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P280 Wear protective gloves/ 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 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
 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

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]	67837-35-8	90 - 100

**URALANE® 5776 A US**

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

4,4'-methylenedicyclohexyl diisocyanate	5124-30-1	1 - 5
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The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

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.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : Call a physician or poison control centre immediately.
If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- 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.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician : Treat symptomatically.

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
Hydrogen cyanide (hydrocyanic acid)
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- 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.
- 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.
Refer to protective measures listed in sections 7 and 8.
- 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 protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons.

**URALANE® 5776 A US**

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
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 : 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.
Keep in properly labelled containers.
- Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.
- Further information on storage stability : Stable under normal conditions.

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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
4,4'-methylenedicyclohexyl diisocyanate	5124-30-1	TWA	0.005 ppm	ACGIH
		C	0.01 ppm 0.11 mg/m3	NIOSH REL
		C	0.01 ppm 0.11 mg/m3	OSHA P0

Personal protective equipment

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

Hand protection

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is

**URALANE® 5776 A US**

Version	Revision Date:	SDS Number:	Date of last issue:
1.2	09/08/2023	400001008862	02/26/2019
			Date of first issue: 10/17/2017

Print Date 02/23/2024

necessary.

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.
- 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
- Colour : light yellow
- Odour : pungent
- Odour Threshold : No data is available on the product itself.
- pH : substance/mixture reacts with water
- Melting point/freezing point : No data is available on the product itself.
- Boiling point : > 392 °F / > 200 °C
- Flash point : 396 °F / 202 °C
Method: Tag closed cup
- Evaporation rate : No data is available on the product itself.
- Flammability (solid, gas) : No data is available on the product itself.
- Flammability (liquids) : No data is available on the product itself.
- Upper explosion limit / Upper flammability limit : No data is available on the product itself.
- Lower explosion limit / Lower flammability limit : No data is available on the product itself.
- Vapour pressure : < 0.001 hPa (68 °F / 20 °C)
- Relative vapour density : No data is available on the product itself.

**URALANE® 5776 A US**

Version	Revision Date:	SDS Number:	Date of last issue: 02/26/2019
1.2	09/08/2023	400001008862	Date of first issue: 10/17/2017

Print Date 02/23/2024

Relative density : 1

Density : 1.1 g/cm³ (77 °F / 25 °C)

Solubility(ies)
Water solubility : Water reactive (68 °F / 20 °C)

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : No data is available on the product itself.

Decomposition temperature : > 392 °F / > 200 °C

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity
Viscosity, dynamic : 3,700 mPa.s (77 °F / 25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Molecular weight : 14,800 - 15,000 g/mol
Method: Regulation (EC) No. 440/2008, Annex, A.18

Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : No hazards to be specially mentioned.

Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : No decomposition if stored and applied as directed.

Hazardous decomposition products : carbon monoxide
carbon dioxide
Nitrogen oxides (NO_x)
hydrogen cyanide
hydrogen cyanide
hydrocarbons
aniline

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute inhalation toxicity : Acute toxicity estimate: 1.43 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:**Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Information given is based on data obtained from similar substances.

Acute inhalation toxicity : LC50 (Rat, male and female): 431.18 mg/m³
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit): > 9,400 mg/kg
Remarks: Information given is based on data obtained from similar substances.

4,4'-methylenedicyclohexyl diisocyanate:

Acute oral toxicity : LD50 (Rat, male and female): 18,200 mg/kg
Method: OECD Test Guideline 401
GLP: no
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): 0.434 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD50 (Rat, male and female): > 7,000 mg/kg
Method: OECD Test Guideline 402
GLP: no
Assessment: The substance or mixture has no acute dermal toxicity

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

Skin corrosion/irritation**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Species : Rabbit
Assessment : Irritating to skin.
Method : OECD Test Guideline 404
Result : Irritating to skin.

4,4'-methylenedicyclohexyl diisocyanate:

Species : Rabbit
Assessment : Irritating to skin.
Method : OECD Test Guideline 404
Result : Irritating to skin.
GLP : yes

Serious eye damage/eye irritation**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Species : Rabbit
Result : Irritating to eyes.
Assessment : Irritating to eyes.
Method : OECD Test Guideline 405

4,4'-methylenedicyclohexyl diisocyanate:

Species : Rabbit
Result : Irritating to eyes.
Assessment : Irritating to eyes.
Method : OECD Test Guideline 405
GLP : no

Respiratory or skin sensitisation**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Exposure routes : Skin
Species : Guinea pig
Assessment : May cause sensitisation by skin contact.
Method : OECD Test Guideline 406
Result : May cause sensitisation by skin contact.

Test Type : Local lymph node assay (LLNA)
Exposure routes : Respiratory Tract
Species : Guinea pig
Assessment : May cause sensitisation by inhalation.
Result : May cause sensitisation by inhalation.

Assessment : May cause allergy or asthma symptoms or breathing difficulties if inhaled., May cause an allergic skin

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

reaction.

4,4'-methylenedicyclohexyl diisocyanate:

Test Type : Maximisation Test
Exposure routes : Skin
Species : Guinea pig
Assessment : May cause sensitisation by skin contact.
Method : OECD Test Guideline 406
Result : May cause sensitisation by skin contact.

Test Type : Local lymph node assay (LLNA)
Exposure routes : inhalation (dust/mist/fume)
Species : Guinea pig
Method : OECD Test Guideline 403
Result : May cause sensitisation by inhalation.
GLP : yes

Assessment : May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Rat (male)
Cell type: Somatic
Application Route: Inhalation
Exposure time: 3 Weeks
Method: OECD Test Guideline 474
Result: negative

Test Type: comet assay
Species: Rat (male)
Cell type: Liver cells
Application Route: inhalation (dust/mist/fume)
Dose: 2.5/4.9/12 mg/m³
Method: OECD Test Guideline 489
Result: negative

4,4'-methylenedicyclohexyl diisocyanate:

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Carcinogenicity**Components:**

Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:

Species : Rat, female
Application Route : Inhalation
Exposure time : 24 month(s)
Activity duration : 17 h
Dose : 0, 0.2, 0.7, 2.1 mg/m³ mg/m³
Frequency of Treatment : 5 days/week
NOEL : 0.7 mg/m³
LOAEL : 0.23 mg/m³
Result : positive
Target Organs : Lungs

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.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

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

Reproductive toxicity**Components:**

4,4'-methylenedicyclohexyl diisocyanate:

Effects on fertility : Test Type: Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: inhalation (dust/mist/fume)
Dose: 1/6/36 mg/m³
Frequency of Treatment: 7 days/week
General Toxicity - Parent: NOAEL: 1 mg/m³
General Toxicity F1: NOAEL: 36 mg/m³
Target Organs: Respiratory Tract
Method: OECD Test Guideline 421
Result: negative

URALANE® 5776 A US

Version	Revision Date:	SDS Number:	Date of last issue:
1.2	09/08/2023	400001008862	02/26/2019
			Date of first issue: 10/17/2017

Print Date 02/23/2024

GLP: yes

Effects on foetal development : Test Type: Pre-natal
Species: Rat, female
Application Route: Inhalation
Dose: 1/6/36 mg/m³
Duration of Single Treatment: 14 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: NOAEL: 1 mg/m³
Developmental Toxicity: NOAEL: 6 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects
GLP: yes

STOT - single exposure**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Exposure routes : Inhalation
Target Organs : Respiratory system
Assessment : May cause respiratory irritation., The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

4,4'-methylenedicyclohexyl diisocyanate:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

STOT - repeated exposure**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Exposure routes : inhalation (dust/mist/fume)
Target Organs : Respiratory system
Assessment : May cause damage to organs through prolonged or repeated exposure., The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Repeated dose toxicity**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Species : Rat, female
LOEC : 1 mg/m³
Application Route : Inhalation
Test atmosphere : dust/mist
Exposure time : 2 years 17 h
Number of exposures : 5 days/week
Dose : 0, 0.2, 0.7, 2.1 mg/m³

**URALANE® 5776 A US**

Version	Revision Date:	SDS Number:	Date of last issue: 02/26/2019
1.2	09/08/2023	400001008862	Date of first issue: 10/17/2017

Print Date 02/23/2024

Method : Chronic toxicity
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

4,4'-methylenedicyclohexyl diisocyanate:

Species : Rat, male and female
NOAEL : 3 mg/m³
Application Route : inhalation (dust/mist/fume)
Test atmosphere : dust/mist
Exposure time : 13 weeks 6 h
Number of exposures : 5 days/week
Dose : 0.5/3/18 mg/m³
Method : OECD Test Guideline 413
GLP : yes

Aspiration toxicity

No data available

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l
End point: mortality
Exposure time: 96 h
Test substance: Fresh water
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 9 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

URALANE® 5776 A US

Version	Revision Date:	SDS Number:	Date of last issue: 02/26/2019
1.2	09/08/2023	400001008862	Date of first issue: 10/17/2017

Print Date 02/23/2024

GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): ≥ 10 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 211
 Remarks: Information given is based on data obtained from similar substances.

Toxicity to microorganisms : EC50 (activated sludge): $> 1,000$ mg/l
 Exposure time: 3 h
 Test Type: static test
 Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): $\geq 1,000$ mg/kg
 Exposure time: 336 h

Plant toxicity : EC50: >1000 milligram per kilogram
 Exposure time: 14 d
 Species: Avena sativa (oats)

EC50: >1000 milligram per kilogram
 Exposure time: 14 d
 Species: Lactuca sativa (lettuce)

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

4,4'-methylenedicyclohexyl diisocyanate:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 8.1 mg/l
 End point: mortality
 Exposure time: 96 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.1.
 GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna Straus): > 8.3 mg/l
 End point: Immobilization
 Exposure time: 48 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.2.
 GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 5 mg/l
 Exposure time: 72 h
 Test Type: static test
 Analytical monitoring: yes
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.3.
 GLP: yes

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

Toxicity to microorganisms : EC50 (activated sludge): 191 mg/l
Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: yes

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Persistence and degradability**Components:**

Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Test substance: Fresh water

Stability in water : Degradation half life (DT50): 20 hrs (25 °C)
Remarks: Fresh water

4,4'-methylenedicyclohexyl diisocyanate:

Biodegradability : aerobic
Inoculum: activated sludge, non-adapted
Concentration: 100 mg/l
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.D.
Test substance: Fresh water
GLP: yes

aerobic
Inoculum: activated sludge
Concentration: 12 mg/l
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Test substance: Fresh water
GLP: yes

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

Bioaccumulative potential**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Exposure time: 28 d
Concentration: 0.08 µg/l
Method: OECD Test Guideline 305
Remarks: Bioaccumulation is unlikely.

4,4'-methylenedicyclohexyl diisocyanate:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 10,186
GLP: no
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Partition coefficient: n-octanol/water : log Pow: 6.11 (68 °F / 20 °C)
Method: Calculation method

Mobility in soil**Components:****Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,1'-methylenebis[4-isocyanatocyclohexane]:**

Distribution among environmental compartments : log Koc: 4.5
Method: QSAR

Stability in soil : Soil temperature: 72 °F / 22 °C
Dissipation time: 24 h
Method: OECD Test Guideline 307

4,4'-methylenedicyclohexyl diisocyanate:

Distribution among environmental compartments : Koc: 43471 - 375837
Method: QSAR

Other adverse effects**Product:**

Ozone-Depletion Potential : 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 : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

URALANE® 5776 A US

Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
Date of first issue: 10/17/2017

Print Date 02/23/2024

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

- Waste from residues : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

Not regulated as dangerous goods

IATA-DGR

Not regulated as dangerous goods

IMDG-Code

Not regulated as dangerous goods

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**

Not regulated as dangerous goods

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

- SARA 311/312 Hazards** : Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Specific target organ toxicity (single or repeated exposure)

- SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

4,4'-methylenedicyclohexyl diisocyanate 5124-30-1 $\geq 1 - < 5 \%$

URALANE® 5776 A US

Version	Revision Date:	SDS Number:	Date of last issue:
1.2	09/08/2023	400001008862	02/26/2019
			Date of first issue: 10/17/2017

Print Date 02/23/2024

This product does not contain any hazardous air pollutants (HAP) $\geq 0.1\%$, as defined by the U.S. Clean Air Act Section 112 (40 CFR 61)

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:

DSL	: This product contains one or several components that are not on the Canadian DSL nor NDSL.
AIIC	: Not in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

URALANE® 5776 A US

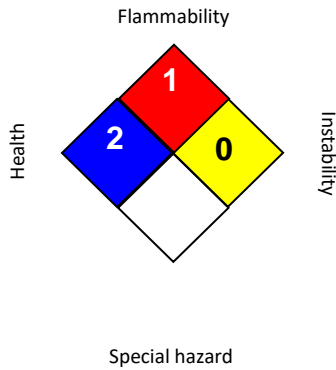
Version 1.2 Revision Date: 09/08/2023 SDS Number: 400001008862 Date of last issue: 02/26/2019
 Date of first issue: 10/17/2017

Print Date 02/23/2024

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

- Revision Date : 09/08/2023
- ACGIH : USA. ACGIH Threshold Limit Values (TLV)
- NIOSH REL : USA. NIOSH Recommended Exposure Limits
- OSHA P0 : USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
- ACGIH / TWA : 8-hour, time-weighted average
- NIOSH REL / C : Ceiling value not be exceeded at any time.
- OSHA P0 / C : Ceiling limit

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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URALANE® 5776 A US

Version	Revision Date:	SDS Number:	Date of last issue: 02/26/2019
1.2	09/08/2023	400001008862	Date of first issue: 10/17/2017

Print Date 02/23/2024

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : URALANE® 5776 B US

Supplier's company name, address and phone number

Company name of supplier : Huntsman Japan K.K.

Address : 5-5-2, Minatojima Minamimachi, Chuo-ku
Kobe,
650-0047
Japan

Telephone : +81-78-304-3900

E-mail address : Global_Product_EHS_AdMat@huntsman.com

Emergency telephone number : EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1 800-424-9300**Recommended use of the chemical and restrictions on use**

Recommended use : Hardener

2. HAZARDS IDENTIFICATION**GHS classification of chemical product**

Acute toxicity (Oral) : Category 4

Skin sensitisation : Category 1

Germ cell mutagenicity : Category 2

Carcinogenicity : Category 2

Specific target organ toxicity -
repeated exposure (Oral) : Category 2 (Liver)Short-term (acute) aquatic
hazard : Category 2Long-term (chronic) aquatic
hazard : Category 1

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

GHS label elements

Hazard pictograms



Signal word

: Warning

Hazard statements

: H302 Harmful if swallowed.
 H317 May cause an allergic skin reaction.
 H341 Suspected of causing genetic defects.
 H351 Suspected of causing cancer.
 H373 May cause damage to organs (Liver) through prolonged or repeated exposure if swallowed.
 H401 Toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

: **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe mist or vapours.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
 P302 + P352 IF ON SKIN: Wash with plenty of water.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P391 Collect spillage.
Storage:
 P405 Store locked up.
Disposal:
 P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Mixture

URALANE® 5776 B US
 Version 1.1 Revision Date: 2023/04/02 SDS Number: 400001012518 Date of last issue: 2018/01/16
 Date of first issue: 2018/01/16

Print Date 2024/02/23

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)	ENCS No.
4,4'-methylenebis[N-sec-butylaniline]	5285-60-9	30 - 40	4-106
quartz (SiO ₂)	14808-60-7	20 - 30	1-548
1,1',1'',1'''-ethylenedinitrilotetrapropan-2-ol	102-60-3	1 - 10	2-2410
4,4'-methylenebis(2-ethylaniline)	19900-65-3	2.5 - 10	4-863
Formaldehyde, polymer with 2-ethylbenzenamine	69178-41-2	1 - 10	7-1132
3-aminopropyltriethoxysilane	919-30-2	0.1 - 1	2-2061
2-ethylaniline	578-54-1	0.1 - 1	3-206
Stoddard solvent	8052-41-3	0.25 - 1	
Solvent naphtha (petroleum), light arom.	64742-95-6	0.1 - 0.25	
Naphtha (petroleum), hydrotreated heavy	64742-48-9	0.1 - 1	

4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
 Consult a physician.
 Show this safety data sheet to the doctor in attendance.
 Treat symptomatically.
 Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
 Get medical attention if symptoms occur.
- In case of skin contact : If on skin, rinse well with water.
- In case of eye contact : Flush eyes with water as a precaution.
 Remove contact lenses.
 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.
 Never give anything by mouth to an unconscious person.
 If symptoms persist, call a physician.
 Take victim immediately to hospital.
- Most important symptoms and effects, both acute and : None known.

**URALANE® 5776 B US**

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

delayed

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing. If potential for exposure exists refer to Section 8 for specific personal protective equipment. Avoid inhalation, ingestion and contact with skin and eyes. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : Treat symptomatically.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
- Specific extinguishing methods : 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.
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
- 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.



URALANE® 5776 B US

Version 1.1 Revision Date: 2023/04/02 SDS Number: 400001012518 Date of last issue: 2018/01/16
 Date of first issue: 2018/01/16

Print Date 2024/02/23

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.

7. HANDLING AND STORAGE

Handling

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
 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.
 Dispose of rinse water in accordance with local and national regulations.

Avoidance of contact : None known.

Hygiene measures : When using do not eat or drink.
 When using do not smoke.
 Wash hands before breaks and at the end of workday.

Storage

Conditions for safe storage : 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.
 Keep in properly labelled containers.

Materials to avoid : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Threshold limit value and permissible exposure limits for each component in the work environment

Components	CAS-No.	Value type (Form of	Control parameters /	Basis
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URALANE® 5776 B US

 Version 1.1 Revision Date: 2023/04/02 SDS Number: 400001012518 Date of last issue: 2018/01/16
 Date of first issue: 2018/01/16

Print Date 2024/02/23

		exposure)	Reference concentration / Permissible concentration	
quartz (SiO ₂)	14808-60-7	OEL-C (Respirable dust)	0.03 mg/m ³ (Silica)	JP OEL JSOH
Further information: Group 1: carcinogenic to humans				
		TWA (Respirable particulate matter)	0.025 mg/m ³ (Silica)	ACGIH
Solvent naphtha (petroleum), light arom.	64742-95-6	TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH

Personal protective equipment

Respiratory protection : **W A R N I N G !** This product contains quartz, which has been classified by IARC as carcinogenic for humans (Group 1), and which can cause silicosis and lung cancer following exposure to respirable dust. It is therefore important to take particular care to avoid inhalation exposure when mechanically processing cured material (e.g. grinding, sanding, sawing).

Hand protection

Material : butyl-rubber
 Break through time : > 8 h

Material : Nitrile rubber
 Break through time : 10 - 480 min

Material : Ethyl Vinyl Alcohol Laminate (EVAL)
 Break through time : > 8 h

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
 The suitability for a specific workplace should be discussed with the producers of the protective gloves.
 The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
 Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
 Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Eye protection : Eye wash bottle with pure water
 Tightly fitting safety goggles

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid

Colour : dark brown

Odour : ammoniacal

Odour Threshold : No data is available on the product itself.

pH : substance/mixture is non-soluble (in water)

Melting point/freezing point : No data is available on the product itself.

Boiling point : No data is available on the product itself.

Flash point : > 94 °C
Method: Tag closed cup

Evaporation rate : < 1

Flammability (solid, gas) : No data is available on the product itself.

Flammability (liquids) : No data is available on the product itself.

Upper explosion limit / Upper flammability limit : No data is available on the product itself.

Lower explosion limit / Lower flammability limit : No data is available on the product itself.

Vapour pressure : < 1.333 hPa (20 °C)

Relative vapour density : 1

Relative density : 1.12

Density : No data is available on the product itself.

Solubility(ies)
Water solubility : negligible

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : No data is available on the product itself.

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Decomposition temperature : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity : No data is available on the product itself.

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Particle size : No data is available on the product itself.

10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : No hazards to be specially mentioned.

Conditions to avoid : None known.

Incompatible materials : None known.

Hazardous decomposition products : carbon dioxide
carbon monoxide
Nitrogen oxides (NOx)**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Product:**Acute oral toxicity : Acute toxicity estimate: 1,897 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation methodAcute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method**Components:****4,4'-methylenebis[N-sec-butylaniline]:**

Acute oral toxicity : LD50 (Rat): 1,380 mg/kg

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue:
1.1	2023/04/02	400001012518	2018/01/16
			Date of first issue: 2018/01/16

Print Date 2024/02/23

Acute dermal toxicity : LD50 (Rabbit): > 3,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

1,1',1",1'''-ethylenedinitrilotetrapropan-2-ol:

Acute oral toxicity : LD50 (Rat, male and female): 2,890 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg

4,4'-methylenebis(2-ethylaniline):

Acute oral toxicity : LD50 (Rat): 444 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): > 0.85 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rat, male and female): 2,080 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is low toxic after single contact with skin.

Formaldehyde, polymer with 2-ethylbenzenamine:

Acute oral toxicity : LD50 (Rat): 1,000 mg/kg

3-aminopropyltriethoxysilane:

Acute oral toxicity : LD50 (Rat, male and female): 1,491 - 2,688 mg/kg
Method: Acute Oral Toxicity

Acute inhalation toxicity : LC50 (Rat, male): > 5 ppm
Exposure time: 6 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, male and female): 4,075 mg/kg
Method: Acute Dermal Toxicity
Assessment: The substance or mixture has no acute dermal toxicity

2-ethylaniline:

Acute oral toxicity : LD50: 1,260 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute dermal toxicity : LD50 (Rabbit): 840 mg/kg
Assessment: The component/mixture is toxic after single contact with skin.

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Solvent naphtha (petroleum), light arom.:

Acute oral toxicity : LD50 (Rat, female): 3,492 mg/kg
Assessment: The component/mixture is low toxic after single ingestion.

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is low toxic after single contact with skin.

Skin corrosion/irritation**Components:****4,4'-methylenebis[N-sec-butylaniline]:**

Species : Rabbit
Result : No skin irritation

4,4'-methylenebis(2-ethylaniline):

Species : Rabbit
Assessment : No skin irritation
Method : OPPTS 870.2500
Result : No skin irritation

3-aminopropyltriethoxysilane:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Causes burns.

Serious eye damage/eye irritation**Components:****4,4'-methylenebis[N-sec-butylaniline]:**

Species : Rabbit
Result : No eye irritation

1,1',1'',1'''-ethylenedinitrilotetrapropan-2-ol:

Species : Rabbit
Result : Irritating to eyes.
Assessment : Irritant

4,4'-methylenebis(2-ethylaniline):

Species : Rabbit
Result : No eye irritation
Assessment : No eye irritation
Method : Acute Eye Irritation

3-aminopropyltriethoxysilane:

Species : Rabbit

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Result : Risk of serious damage to eyes.
Method : OECD Test Guideline 405

2-ethylaniline:

Result : Eye irritation

Respiratory or skin sensitisation**Components:****4,4'-methylenebis[N-sec-butylaniline]:**

Exposure routes : Skin
Result : Does not cause skin sensitisation.

4,4'-methylenebis(2-ethylaniline):

Exposure routes : Skin
Species : Humans
Result : The product is a skin sensitiser, sub-category 1A.

3-aminopropyltriethoxysilane:

Exposure routes : Skin
Species : Guinea pig
Method : OECD Test Guideline 406
Result : The product is a skin sensitiser, sub-category 1B.

Solvent naphtha (petroleum), light arom.:

Exposure routes : Skin
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

Germ cell mutagenicity**Components:****4,4'-methylenebis[N-sec-butylaniline]:**

Genotoxicity in vitro : Method: OECD Test Guideline 471
Result: negative

4,4'-methylenebis(2-ethylaniline):

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: positive

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse
Cell type: Somatic
Application Route: Intraperitoneal injection

**URALANE® 5776 B US**

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Exposure time: 72 h
Dose: 56 - 140 mg/kg
Method: OECD Test Guideline 474
Result: Not classified due to inconclusive data.

Test Type: In vivo micronucleus test
Species: Mouse
Cell type: Somatic
Application Route: Intraperitoneal injection
Dose: 9.3 - 37 mg/kg
Method: OECD Test Guideline 474
Result: positive

Germ cell mutagenicity - Assessment : Positive result(s) from in vivo somatic cell mutagenicity tests supported by positive results from in vitro mutagenicity assays or chemical structure activity relationship to known germ cell mutagens

3-aminopropyltriethoxysilane:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Solvent naphtha (petroleum), light arom.:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 5 d
Method: OECD Test Guideline 475
Result: negative

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Carcinogenicity**Components:****4,4'-methylenebis(2-ethylaniline):**

Species	: Rat, male and female
Application Route	: Oral
Exposure time	: 103 weeks
Dose	: 9 - 10 mg/kg
Frequency of Treatment	: 24 hour
Method	: OECD Test Guideline 451
Result	: positive

Carcinogenicity - Assessment	: Limited evidence of carcinogenicity in animal studies
------------------------------	---

Reproductive toxicity**Components:****1,1',1'',1'''-ethylenedinitrilotetrapropan-2-ol:**

Effects on fertility	: Species: Rat, male and female Application Route: Oral Method: OECD Test Guideline 422 Result: negative
----------------------	---

Effects on foetal development	: Species: Rat, female Application Route: Oral General Toxicity Maternal: NOAEL: 400 mg/kg body weight Result: No teratogenic effects
-------------------------------	--

Solvent naphtha (petroleum), light arom.:

Effects on fertility	: Species: Rat, male and female Application Route: Inhalation Result: No effects on fertility and early embryonic development were detected.
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Effects on foetal development	: Species: Rat, female Application Route: Inhalation General Toxicity Maternal: NOAEL: 100 ppm Result: No teratogenic effects
-------------------------------	--

STOT - single exposure**Components:****4,4'-methylenebis(2-ethylaniline):**

Exposure routes	: Ingestion
Target Organs	: Liver
Assessment	: May cause damage to organs.

Stoddard solvent:

Exposure routes	: Inhalation
Target Organs	: Narcotic effects

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Assessment : May cause drowsiness or dizziness.

Solvent naphtha (petroleum), light arom.:

Exposure routes	: inhalation (vapour)
Target Organs	: Respiratory Tract, Narcotic effects
Assessment	: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects. The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT - repeated exposure**Components:****4,4'-methylenebis(2-ethylaniline):**

Exposure routes	: Ingestion
Target Organs	: Liver
Assessment	: Causes damage to organs through prolonged or repeated exposure.

Exposure routes	: Ingestion
Target Organs	: Kidney
Assessment	: May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Components:****1,1',1'',1'''-ethylenedinitrilotetrapropan-2-ol:**

Species	: Rat, male and female
NOAEL	: 1000 mg/kg/d
Application Route	: Ingestion
Exposure time	: 1,176 h
Number of exposures	: 7 d
Method	: Subacute toxicity

Species	: Rat, male and female
NOAEL	: 300 mg/kg/d
Application Route	: Ingestion
Exposure time	: 1,176 h
Number of exposures	: 7 d
Method	: Subacute toxicity

4,4'-methylenebis(2-ethylaniline):

Species	: Rat, male and female
LOAEL	: 7.5 - 8 mg/kg/d
Application Route	: Ingestion
Exposure time	: 2,160 h
Number of exposures	: 7 d
Method	: Subchronic toxicity

Species	: Rat, male and female
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URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

NOAEL : 90 mg/kg/d
Application Route : Skin contact
Exposure time : 2,160 h
Number of exposures : 5 d
Method : Subchronic toxicity

3-aminopropyltriethoxysilane:

Species : Rat, male and female
NOAEL : 200 mg/kg
Application Route : Ingestion
Exposure time : 2,160 h
Method : Subchronic toxicity

Solvent naphtha (petroleum), light arom.:

Species : Rat
LOEC : 353 - 1537 ppm
Test atmosphere : vapour
Exposure time : 13 Weeks

Aspiration toxicity**Components:****Stoddard solvent:**

May be fatal if swallowed and enters airways.

Solvent naphtha (petroleum), light arom.:

May be fatal if swallowed and enters airways.

Naphtha (petroleum), hydrotreated heavy:

May be fatal if swallowed and enters airways.

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****4,4'-methylenebis[N-sec-butylaniline]:****Ecotoxicology Assessment**

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

1,1',1'',1'''-ethylenedinitrilotetrapropan-2-ol:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 4,600 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
 Test substance: Fresh water
 Method: DIN 38412

LC50 (Leuciscus idus (Golden orfe)): 2,700 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : IC0 (Daphnia magna (Water flea)): > 100 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic plants : EC50 (Other): 150.67 mg/l
 Exposure time: 72 h
 Test substance: Fresh water
 Method: Directive 67/548/EEC, Annex V, C.3.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 10 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 211

4,4'-methylenebis(2-ethylaniline):

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 20.6 mg/l
 Exposure time: 96 h
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.35 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202

M-Factor (Acute aquatic toxicity) : 1

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.00525 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : 10

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

3-aminopropyltriethoxysilane:

- Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 934 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 331 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 1,000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.
- Toxicity to microorganisms : EC50 (Pseudomonas putida): 43 mg/l
Exposure time: 5.75 h
Test Type: static test
Test substance: Fresh water

Stoddard solvent:**Ecotoxicology Assessment**

- Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

Solvent naphtha (petroleum), light arom.:

- Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 9.22 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 3.2 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : ErL50 (Selenastrum capricornutum (green algae)): 7.9 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Ecotoxicology Assessment

- Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

Persistence and degradability**Components:****1,1',1'',1'''-ethylenedinitrilotetrapropan-2-ol:**

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Biodegradability : Inoculum: activated sludge
 Concentration: 107 mg/l
 Result: Inherently biodegradable.
 Biodegradation: 36 %
 Exposure time: 28 d
 Method: OECD Test Guideline 302B

Inoculum: Domestic sewage
 Concentration: 30 mg/l
 Result: Not readily biodegradable.
 Biodegradation: 9 %
 Exposure time: 28 d
 Method: Directive 67/548/EEC Annex V, C.4.D.

3-aminopropyltriethoxysilane:

Biodegradability : Inoculum: activated sludge
 Concentration: 8.95 mg/l
 Result: Not readily biodegradable.
 Biodegradation: 67 %
 Exposure time: 28 d
 Method: Directive 67/548/EEC Annex V, C.4.A.

Solvent naphtha (petroleum), light arom.:

Biodegradability : Result: Readily biodegradable.
 Biodegradation: > 60 %
 Exposure time: 28 d

Biochemical Oxygen Demand (BOD) : 190 mg/l

Chemical Oxygen Demand (COD) : 440 mg/l

Bioaccumulative potential**Components:****4,4'-methylenebis[N-sec-butylaniline]:**

Bioaccumulation : Bioconcentration factor (BCF): 4,700

Partition coefficient: n-octanol/water : log Pow: 6.08
 Method: QSAR

1,1',1'',1'''-ethylenedinitrilotetrapropan-2-ol:

Partition coefficient: n-octanol/water : log Pow: -2.08 (25 °C)

3-aminopropyltriethoxysilane:

Bioaccumulation : Species: Cyprinus carpio (Carp)
 Bioconcentration factor (BCF): 3.4
 Remarks: Does not bioaccumulate.

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Partition coefficient: n-
octanol/water : log Pow: 1.7 (20 °C)
pH: 7

Mobility in soil**Components:****4,4'-methylenebis[N-sec-butylaniline]:**

Distribution among : Koc: 4.91
environmental compartments Method: QSAR

Hazardous to the ozone layer

Not applicable

Other adverse effects**Product:**

Additional ecological : An environmental hazard cannot be excluded in the event of
information unprofessional handling or disposal.
Toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of contents and container in accordance with all local,
regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with
chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(4,4'-METHYLENEBIS(2-ETHYLANILINE))
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo : 964
aircraft)
Packing instruction : 964
(passenger aircraft)
Environmentally hazardous : yes

IMDG-Code

UN number : UN 3082

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (4,4'-METHYLENEBIS(2-ETHYLANILINE))

Class : 9

Packing group : III

Labels : 9

EmS Code : F-A, S-F

Marine pollutant : yes

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

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

ERG Code : 171

15. REGULATORY INFORMATION**Related Regulations****Fire Service Law**

Group 4, Type 3 petroleum, Water insoluble liquid, Hazardous rank III

Chemical Substance Control Law

Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

Industrial Safety and Health Law**Substances Prevented From Impairment of Health**

Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity

Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity

Not applicable

Substances Subject to be Notified Names

Article 57-2 (Enforcement Order Table 9)

Chemical name	Concentration (%)	Remarks
Crystalline silica	20 - 30	-
3-aminopropyltriethoxysilane	0.1 - 1	From April 1st, 2025
Petroleum naphtha	0.1 - 1	-
Gasoline		-

Ordinance on Prevention of Hazards Due to Specified Chemical Substances

URALANE® 5776 B US

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

Not applicable

Ordinance on Prevention of Lead Poisoning

Not applicable

Ordinance on Prevention of Tetraalkyl Lead Poisoning

Not applicable

Ordinance on Prevention of Organic Solvent Poisoning

Not applicable

Poisonous and Deleterious Substances Control Law

Not applicable

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof**Effective from April 1st, 2023**

Not applicable

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

DSL	:	This product contains one or several components listed in the Canadian NDSL.
AIIC	:	On the inventory, or in compliance with the inventory
KECI	:	Not in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	Not in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory
ENCS	:	On the inventory, or in compliance with the inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

16. OTHER INFORMATION

Date format	:	yyyy/mm/dd
ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
JP OEL JSOH	:	Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
JP OEL JSOH / OEL-C	:	Occupational Exposure Limit-Ceiling

**URALANE® 5776 B US**

Version	Revision Date:	SDS Number:	Date of last issue: 2018/01/16
1.1	2023/04/02	400001012518	Date of first issue: 2018/01/16

Print Date 2024/02/23

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