



TOSOH

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**TOSOH CORPORATION**

3-8-2, Shiba, Minato-ku, Tokyo 105-8623, Japan

Phone: +81-3-5427-5393 Fax: +81-3-5427-5379

Date of printing: November 18, 2014

Version: No. T1

Date of revision: November 18, 2014

Date of issue: August 27, 2014

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**Product name: CORONATE LS**


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**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**


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Product name	<b>CORONATE LS</b>
General description	Polyisocyanate solution
Company Identification	
Company name	<b>TOSOH CORPORATION</b>
Department	Functional Urethanes Dept. / Urethane Division
Address	3-8-2, Shiba, Minato-ku, Tokyo 105-8623, Japan
Telephone (Emergency telephone)	+81-3-5427-5393 / +81-3-5427-5379
	(Monday ~ Friday, Japan standard time 9:00 a.m. ~ 6:00 p.m.)

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**2. HAZARDS IDENTIFICATION**


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**GHS classification of the substance or mixture**
**Physical Hazards**

- |                     |                   |
|---------------------|-------------------|
| • Flammable liquids | <b>Category 2</b> |
| • Flammable solids  | Not applicable    |

**Health Hazards**

- |   |  |
|---|--|
| • Acute toxicity (oral)                             | Not classified   |
| • Acute toxicity (skin)                             | Not classified   |
| • Acute toxicity (inhalation: gas)                  | Not applicable   |
| • Acute toxicity (inhalation: vapour)               | <b>Category 4</b>  |
| • Acute toxicity (inhalation: dust, mist)           | Classification not possible  |
| • Skin corrosion/irritation                         | Classification not possible  |
| • Serious eye damages/eye irritation                | <b>Category 2</b>  |
| • Respiratory sensitization                         | Classification not possible  |
| • Skin sensitization                                | Classification not possible  |
| • Germ cell mutagenicity                            | Classification not possible  |
| • Carcinogenicity                                   | Classification not possible  |
| • Reproductive toxicity                             | Classification not possible  |
| • Specific target organ toxicity; single exposure   | <b>Category 1 (Respiratory system)</b><br><b>Category 3 (Narcotic effects)</b> |
| • Specific target organ toxicity; repeated exposure | Classification not possible  |
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- |                                     |                             |
|-------------------------------------|-----------------------------|
| • <b>Aspiration hazard</b>          | Not classified              |
| <b>Environmental Hazards</b>        |                             |
| • <b>Aquatic toxicity (acute)</b>   | Classification not possible |
| • <b>Aquatic toxicity (chronic)</b> | Classification not possible |

Section is not listed, it can not be excluded from 'Not applicable' or 'Classification not possible'

**GHS label elements including precautionary statements**

Symbol :

Signal word : **Danger**

- Hazard statement :
- **Highly flammable liquid and vapour**
  - **Harmful if inhaled**
  - **Causes serious eye irritation**
  - **Causes damage to Respiratory system**
  - **May cause drowsiness or dizziness**

**Precautionary Statements****Prevention**

- Obtain special instructions before use.
- Do not handle until all precautions have been read and understood.
- Keep container tightly closed.  
(There is a danger of explosion if the carbon dioxide generated when water enters.)
- Do not handle in people who cause allergic reactions.
- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Ground/bond container and receiving equipment.
- Use only non-sparking tools.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- Take precautionary measures against static discharge.



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- Use only outdoors or in a well-ventilated area.
- Do not eat, drink or smoke when using this product.
- Do not breathe dust/fume/gas/mist/vapour/spray.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Wash hands thoroughly after handling.

**Response**

- In case of fire: Use dry chemical powder, carbon dioxide, foam, large volume of water spray.
- If swallowed: Rinse mouth with water. Do not induce vomiting. To contact a doctor immediately.
- If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. To contact a doctor immediately.
- If on eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. To contact a doctor immediately.
- If on skin (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. To contact a doctor immediately.
- If on skin: Wash with plenty of soap and water.
- If exposed or concerned, or if you feel unwell: Get medical advice/attention.
- Wash hands thoroughly after handling.
- When leaking out, collect as much as possible to the container and so on. After that, spray and neutralize with an ammonia water, alcohol and so on, and then absorb it with sands.

**Storage**

- Store container in cool place/ well-ventilated place.

**Disposal**

- Dispose of contents/container to waste in accordance with local / regional / national / international regulations (to be specified).

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**3. COMPOSITION / INFORMATION ON INGREDIENTS**


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**Substance / Mixture**

Mixture

**Chemical name**

Polyisocyanate solution

**【Components and Contents】**



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**Product name: CORONATE LS**

Chemical name	Contents	CAS No.
Ethyl acetate	25 %	141-78-6
Modified polyisocyanate	75 %	Trade secret

**【HAZARDOUS INGREDIENT(S)】**

Chemical name	Contents	CAS No.
Ethyl acetate	25 %	141-78-6
Tolylene diisocyanate (TDI)	< 1 %	26471-62-5
Normal hexane (n-Hexane)	< 1 %	110-54-3

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**4. FIRST AID MEASURES**
**If inhaled**

Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
Get medical advice/attention immediately.

**If on skin**

Remove / Take off immediately contaminated clothing and shoes etc. Rinse the part that touches the product, by washing with water or lukewarm water flow. Wash with soap and water. Seek medical advice or attention, if there are change in the appearance or pain persists.

**If on eyes**

Even if very small contact, rinse with clean water for at least 15 minutes, and seek ophthalmologist's advice/attention. During the eyewash, open the eyelid well with your fingers, then wash well the eyeball and the eyelid with water.

**If swallowed**

Rinse mouth well. Spit it in person voluntarily if possible, to vomit.  
Seek medical advice/attention immediately.

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**5. FIRE FIGHTING MEASURES**
**Suitable extinguishing media :**

Dry chemical powder, carbon dioxide, foam, large volume of water spray.

**Unsuitable extinguishing media :**

Water jet

**Specific hazards during fire :**

There is a risk of generating a hazard gas in a fire.

**Specific extinction method :**

Wear self-contained breathing apparatus and protective gloves, because cracked gas and steam



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are generated in the case of fire. Water is drained off to the drum, container etc. that have not ignited, and it tries to prevent fire spreading, overheating, and explosion of containers. After the fire is extinguished, neutralize the spilled material with decontaminant. Do not let outsiders enter the place fire.

**Special protective for fire-fighters :**

In the extinction work, wear self-contained breathing apparatus and protective gloves, because cracked gas and steam are generated.

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**6. ACCIDENTAL RELEASE MEASURES**


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**Personal precautions :**

Immediately remove all sources of ignition and flammable material. In case of fire, use powder or foam as extinguishing media. Wear safety glasses, rubber gloves, a gas mask for organic gas. Restrict entry of unauthorized personnel. To work from the windward. Evacuate people downwind. Better ventilation of the place spilled. Temporary leak repair parts, stop the leak.

**Environmental precautions :**

Do not flow spillage directly into rivers or sewage. Adhered and collected waste material should be promptly disposed of, in accordance with appropriate laws and regulations.

**Methods and materials for containment and cleaning up :**

(Small spill)

Sprayed with a neutralizing agent to neutralize. Remove adsorbed sand, earth, sawdust, etc. If wiping rags, waste paper, etc., remove and store in a container with a lid.

(Large spill)

As spilled liquid can not spread, enclosed sand, earth, sawdust, etc. Recovered in the liquid container as much as possible. Collection container must not be sealed. Which could not be recovered sprayed with a neutralizing agent to neutralize or Removed by the above method.

Wash the spillage area clean with water.

**Measures to prevent secondary disasters :**

Promptly except near sources of ignition and prepare a fire extinguishing agent.

Using a safety tool that does not generate a spark.

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**7. HANDLING AND STORAGE**


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**Handling**

The operator should be trained in handling this product.

**Technical measure**

Wear appropriate protective goggles, rubber gloves, a gas mask for organic gas.

Thoroughly ventilate the workplace, workers wear protective.



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**Product name: CORONATE LS**
**Safety treatment notes**

If a higher pressure in the container, remove the lid and remove the pressure slightly loosen the lid. Do not the filling of container this products to the unwashed containers and attached water containers. Take precautionary measures against static discharge. Working space is a non smoking. Forbid to use the open flame heating element, high-temperature heating elements.

**Storage****Appropriate safekeeping condition**

Store in indoors well-ventilated. Keep container tightly closed. Once a container is opened, the container should be sealed with dry nitrogen or dry air (dew point < -30°C) and be closed tightly. If stored outdoors, the container should be covered with waterproof canvas sheet to avoid being exposed in the rain. The use of fire is strictly prohibited in the storage area.

**Packaging materials**

Excellent corrosion resistance in a suitable material, use containers with airtight packaging. Containers which are prescribed in Fire and Disaster Management Act and UN transport regulations.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**


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**Facility and equipment measures**

Facilities in where this material is handled should be structured with the perfectly closed system. Make available emergency safety shower and eye wash in the work area.

**Control limit**

Ethyl acetate	:	200 ppm
Tolylene diisocyanate (TDI)	:	0.005 ppm
Normal hexane (n-Hexane)	:	40 ppm

**Occupational exposure limits**

Ethyl acetate	:	400 ppm	ACGIH (TLV-TWA ) 2007
	:	200 ppm	JSOH (TLV-TWA) 2007
Tolylene diisocyanate (TDI)	:	0.005 ppm	ACGIH (TLV-TWA ) 2007
	:	0.02 ppm	ACGIH (TLV- STEL) 2007
	:	0.005 ppm	JSOH (TLV-TWA) 2007
	:	0.02 ppm	JSOH (C) 2007
Normal hexane (n-Hexane)	:	50 ppm	ACGIH (TLV-TWA ) 2007

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**Product name: CORONATE LS**

: 40 ppm JSOH (TLV-TWA) 2007

\*JSOH: Japan Society of Occupational Health

**Personal protective equipment**

Respiratory protection	Respirator for organic gases
Hand protection	Safety gloves made from rubbers or plastics (impermeable)
Eye protection	Safety glasses with side version or protection goggles
Skin and body protection	Long sleeve protective work clothes

**Hygiene measures**

Contaminated protective clothing, protective equipment should be replaced as soon as possible.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**


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<b>Appearance</b>	Liquid
<b>Color</b>	Pale yellow
<b>Odor</b>	Aromatic odor
<b>PH</b>	—
<b>Boiling point</b>	—
<b>Freezing point</b>	—
<b>Flash point</b>	12 °C determined by closed cup flash test. (Sealed Seta)
<b>Explosion limit</b>	—
<b>Vapour pressure</b>	—
<b>Vapour density</b>	—
<b>Specific gravity</b>	1.183 × 10 <sup>3</sup> (kg/m <sup>3</sup> ) at 23°C
<b>Solubility (water)</b>	Insoluble
<b>Solubility (other)</b>	Soluble in toluene, ethyl acetate or acetone
<b>Octanol /water partition coefficient</b>	
	For Ethyl acetate : log Pow 0.73 (octanol/water partition coefficient)
<b>Viscosity</b>	1,200 mm <sup>2</sup> /s at 25°C

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**10. STABILITY AND REACTIVITY**


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<b>Stability</b>	Flammability	some
	Ignition quality	na
	Oxidizing	na
	Self-reactive, Explosiveness	na
	Explosive dust	na
	Other	na

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**Reactivity**

Exothermic react with water forming CO<sub>2</sub>. Exothermic react with active-hydrogen compound (alcohols, amine and so on). The polymerization reaction with an alkaline substance, a tertiary amine and so on.

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**11. TOXICOLOGICAL INFORMATION**
**Acute Toxicity****For Ethyl acetate**

Oral (rat) : Not classified : LD50 > 5,000mg/kg (all data)  
(ACGIH (2001), DFGOT (VOL.12, 1999), PATTY (5<sup>TH</sup>, 2001))

Skin (rabbit) : Not classified : LD50 = 18,000mg/kg (have not died)  
(DFGOT (VOL.12, 1999))

Inhalation (gas) : Not applicable : Liquid (GHS definition)

Inhalation (vapour) : Not classified

Lowest data : LC50 = 14,620ppm > 5,000ppm = 2.5 × 2,000ppm (Limit data Category 4)  
(DFGOT VOL.12 (1999))

Maximum vapour concentration : 350g/m<sup>3</sup> at 20°C (GESTIS, 2005)

Highest data : LC50 = 57.6g/m<sup>3</sup> ≤ Saturating concentration : Interpreted as "not mist"  
(ACGIH, 1991)

Inhalation (dust, mist) : Classification not possible : There are no data.

**For Tolyene diisocyanate (TDI)**

Oral (rat) : Not classified : 2,4/2,6-TDI(80/20), LD50 = 5,840mg/kg (Wazeter 1964A),  
LD50 = 7,500mg/kg (CERI, 1998), other similar studies available.

Skin (rabbit) : Not classified : TDI unspecified isomers, LD50 > 9,400mg/kg  
(Wazeter, 1964B)

Inhalation (gas) : Not applicable : Liquid (GHS definition)

Inhalation (vapour) : Category 1

The saturated vapour concentration of TDI at 25°C is about 160mg/m<sup>3</sup> (22ppm). In the workplace exposure is likely to vapour only. In animal tests at the high concentrations used above the saturated vapour concentration, it may be assumed that both vapour and aerosol were present. 2,4/2,6-TDI(80/20), LC50, 1hr, rat, 470mg/m<sup>3</sup> (66ppm) (Doe and Horspool 1980), LC50, 6hr, mouse, 100-140mg/m<sup>3</sup> (14-19ppm) (Mackay 1992).

Inhalation (dust, mist) : Not applicable

The saturated vapour concentration of TDI at 25°C is about 160mg/m<sup>3</sup> (22ppm). It may be



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assumed that in the high exposure LC50 studies both vapour and aerosol were present. For worker exposures vapour exposures are likely, see vapour section for classification.

### For Normal hexane (n-Hexane)

Oral (rat) : Not classified : LD50 = 19,634mg/kg (calculated value)  
 based on LD50 = 25,000mg/kg (Ministry of the Environment Risk Assessment Vol.1, 2002),  
 28,700mg/kg (EHC 122(1993), DEGOT VOL.14(2000), PATTY(4<sup>TH</sup>,1994), ATSDR(1999)),  
 32,400mg/kg (EHC 122 (1993), DEGOT VOL.14 (2000), ATSDR (1999)),  
 15,800mg/kg (EHC 122 (1993), DEGOT VOL.14 (2000), ATSDR (1999))  
 Skin (rabbit) : Classification not possible : There are no LD50 data.  
 PATTY (4<sup>TH</sup>, 1994) description : 5mg/kg (conversion data 3,297mg/kg) = rabbit died  
 Inhalation (gas) : Not applicable : Liquid (GHS definition)  
 Inhalation (vapour, rat) : Not classified : LC50 = 38,500ppm(135.46mg/L)/4hr (minimum data)  
 based on LC50 = 77,000ppm/1hr (conversion data LC50 = 38,500ppm (135.46mg/L)/4hr),  
 (EHC 122 (1993), DFGOT VOL.14 (2000)),  
 74,000ppm/4hr (260.36mg/L), (EHC 122 (1993), DFGOT VOL.14 (2000)),  
 48,000ppm/4hr (168.88mg/L), (Ministry of the Environment Risk Assessment Vol.1, 2002)

### Skin corrosion /irritation

#### For Ethyl acetate

[Unstimulated] (man, DFGOT Vol.12 (1999)) and (rabbit, IUCLID (2000)) : Not classified  
 Effect observed : by toxicity-repeated dermal exposure, only 'Degreasing'

#### For Tolyene diisocyanate (TDI)

EU RISK PHRASE R38 (EU category irritant) : Category 2  
 DUPRAT ET AL.1976: 2,4-TDI. / KNAPP AND BAKER 1974A,B: TDI unspecified. /  
 WOOLHISER ET AL.1998:TDI unspecified.

#### For Normal hexane (n-Hexane)

(man) There were skin irritation. : Category 2  
 (Ministry of the Environment Risk Assessment Vol.1(2002), EHC122 (1993), DFGOT VOL.14  
 (2000), PATTY (4<sup>TH</sup>, 1994) and ATSDR (1999))

### Serious eye damage/ eye irritation

#### For Ethyl acetate

(rabbit) Eye irritation was observed, have recovered within 7days. : Category 2B  
 (ECETOC (TR48 (2), 1998))

#### For Tolyene diisocyanate (TDI)

TDI unspecified. (DUPRAT ET AL. 1976, KNAPP and BAKER 1974, WOOLHISER ET AL.  
 1998.), EU category irritant R36, US EPA HPV 'irritant' : Category 2A

#### For Normal hexane (n-Hexane)

(man) There were irritation to the eye.  
 (Ministry of the Environment Risk Assessment Vol.1, 2002)



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(rabbit) There was a mild irritant. (DFGOT Vol.14, 2000) : Category 2A-2B  
Resiliency and the degree of stimulation is unknown. Could not fine-grained category.

**Respiratory/skin sensitization****For Ethyl acetate****respiratory sensitization** No information**skin sensitization** (man, rabbit) Skin sensitization test results : Not classified  
(IUCLID (2000), DFGOT (Vol.12, 1999))**For Tolyene diisocyanate (TDI)****respiratory sensitization** : Category 12,4/2,6-TDI(80/20), Respiratory sensitisation demonstrated in animal and man.  
(CERI hazard data collection 97-20 1998, WHO 1987, DFG 2003, ACGIH 2004, ACC 2004,  
BOTHAM ET AL. 1988, KAROL 1983, Pauluhn and Mohr 1998) EU RISK PHRASE R42.**skin sensitization** : Category 12,4/2,6-TDI(80/20), Skin sensitisation demonstrated in animal and man.  
(CERI hazard data collection 97-20 1998, WHO 1987, DFG 2003, ACC 2004, VAN OCH ET  
AL. 2000, ZISSU ET AL. 1998) EU RISK PHRASE R43.**For Normal hexane (n-Hexane)****respiratory sensitization** : No data**skin sensitization** : Classification not possible(man, 25case) MAXIMIZATION TEST = There was no skin sensitization. (EHC122 (1993),  
DFGOT VOL.4 (1992)) : It is not sufficient as evidence.**Germ cell mutagenicity****For Ethyl acetate**IN VIVO micronucleus test = Negative : Not classified  
(DFGOT Vol.12 (1999), IUCLID (2000))**For Tolyene diisocyanate (TDI)**There are no germ cell mutagenicity data. There are somatic cell mutagenicity data in vitro and  
in vivo and in particular mammalian studies, which are negative. : Not classified  
(ACC 2004, Seel et al.1999, Mackay 1992, Benford and Riley 1988, Loeser 1983)**For Normal hexane (n-Hexane)**

Dominant lethal test using rodents = Negative

(EHC 122 (1993), DFGOT Vol.4 (1992), ATSDR (1999))

Micronucleus test using the erythrocyte of mammals = Negative (ATSDR (1999))

Chromosome aberration test using the bone marrow cells of mammals = Negative  
(DFGOT VOL.4 (1992)) : Not classified**Carcinogenicity****For Ethyl acetate**

Lack of data : Classification not possible



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**For Tolyene diisocyanate (TDI)**

2,4/2,6-TDI(80/20), Carcinogenicity studies in rats and mice with inhalation exposure (the relevant route for human exposure) did not reveal any carcinogenic potential when tested up to the maximum tolerated does (Loeser 1983). The carcinogenicity study dosing by the oral route (DHHS NTP 1986) has been criticised for a variety of problems including exceeding the maximum tolerated dose, poor gavage technique causing deaths, and particularly inadequate storage of test material resulting in degradation of test chemical (Dieter et al. 1990, Schulz 1985). As the test substance dosed included degradation products, this study is considered to be invalid and thus unreliable for classification purposes. In spite of the major study deficiencies some agencies have used the data for classification: (ACGIH 2004) classification A4, (IARC 1999) 2B, and EU RISK PHRASE R42) Epidemiological studies of TDI exposed workers show no increased carcinogenicity related to TDI exposure. : Not classified

**For Normal hexane (n-Hexane)**

There is no evaluation by authorities indicated in technical guidelines.

: Classification not possible

**Reproductive toxicity****For Ethyl acetate**

Lack of data : Classification not possible

**For Tolyene diisocyanate (TDI)**

2,4/2,6 TDI (80/20), Fertility : No adverse effects in a 2-generation study in rats. No indication of selective developmental toxicity at exposure levels without maternal toxicity. (TYL ET AL. 1999A, B) : Not classified

**For Normal hexane (n-Hexane)**

(rat) Inhalation exposure :

There was tissue injury of the testis with inhibition of spermatogenesis.

(EHC 122 (1993), DFGOT VOL.4 (1992), IRIS (ACCESS ON JULY 2005), ATSDR (1999))

(rat) 1,000ppm exposure (Conditions that affect the testes) :

muscle atrophy (DFGOT Vol.4, 1992), and weight loss (ATSDR, 1999) : Category 2

**Specific target organ toxicity-single exposure****For Ethyl acetate**

: Category 1 (Respiratory system), Category 3 (Narcotic effects)

(man) 400ppm exposure : Upper respiratory irritation (ACGIH (2001), DFGOT Vol.12 (1999))

exposure to near lethal dose : Lung injury and anesthesia (DFGOT Vol.12 (1999))

**For Tolyene diisocyanate (TDI)**

: Category 3 (Respiratory tract irritation)

For animals transient effects (Shiotsuka 1987, Weyel et al. 1982, Sangha and Alarie, 1979)

For people irritation is detected at 0.05 – 0.1ppm (Henschler 1962)

**For Normal hexane (n-Hexane)**



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: Category 3 (Respiratory tract irritation, Narcotic effects)

(man) Acute inhalation toxicity :

Vertigo, Central nervous system depression, etc. [Narcotic effects]

(EHC 122 (1993), ACGIH (7<sup>th</sup>, 2001), DFGOT VOL.4 (1992), PATTY (4<sup>th</sup>, 2001))

(man) Exposure inhalation : Respiratory tract irritation, Narcotic effects

(ACGIH (7<sup>th</sup>, 2001), PATTY (4<sup>th</sup>, 1994))

Narcotic effects (PATTY (4<sup>th</sup>, 1994))

### Specific target organ toxicity-repeated exposure

#### For Ethyl acetate

(animal) Inhalation exposure concentration > Guidance value upper limit of Category 2  
 (250ppm or 1mg/L)

(man) Work exposure = there is case of failure. (Mixed exposure) : Can not be determined.

#### For Tolyene diisocyanate (TDI)

2,4/2,6 TDI (80/20), Comment: Lung decrement has been reported in some studies as a consequence of repeated exposure to TDI. However, this effect can only be observed after inhalation exposure in the tissue at the point of contact and does not represent systemic toxicity. It is a local effect that is already covered by respiratory irritation (TOST single exposure, Cat. 3) and respiratory sensitization (Category1). Ott(2002) and Ott, Diller and Jolly(2003), indicate that respiratory sensitisation may have contributed to the lung decrement reported in some studies. Therefore, it is concluded that possible lung effects do not qualify as specific target organ systemic toxicity after repeated exposure in accordance to chapter 3. 9. 1. 6. of the GHS (UNECE 2003). In addition, all warning and safety measures for local effects as well as for acute inhalation toxicity category 1 already provide for a protection of workers and professional users that are involved in the handling of TDI. : Not classified

#### For Normal hexane (n-Hexane)

: Category 1 (Central nervous system, Peripheral nervous system)

(man) Case of chronic exposure = Polyneuropathy (failure of motor nerve and sensory nerve)  
 (Ministry of the Environment Risk Assessment Vol.1 (2002), EHC 122 (1993), ACGIH (7<sup>th</sup>, 2001), DFGOT Vol.14 (2000), PATTY (4<sup>th</sup>, 1994), IRIS (2005), Industrial Society recommendation (1993), ARSDR (1999))

### Aspiration hazard

#### For Ethyl acetate

From kinematic viscosity of 25°C, Ethyl acetate correspond to the criteria '2b' at 40°C.

But there is no experimental data of chemical pneumonia. : Not classified

#### For Tolyene diisocyanate (TDI) : NA

#### For Normal hexane (n-Hexane)

Hydrocarbon, and kinematic viscosity of 40°C  $\leq$  20.5mm<sup>2</sup>/s : Category 1

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**Product name: CORONATE LS**

(rat) Chemical pneumonia by aspiration. (DFGOT Vol.4, 1992)

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**12. ECOLOGICAL INFORMATION**
**Aquatic Toxicity**
**For Ethyl acetate**

(Acute) Crustacean (Water flea) EC50 = 164 mg/L/48hr (IUCLID, 2000) : Not classified

(Chronic) Not a poorly water-soluble, and Acute toxicity is low. : Not classified

(Aqueous solubility = 80,000mg/L (PHYSROP DATABASE, 2005))

**For Tolyene diisocyanate (TDI)**

(Acute) Fish (Flounder) LC50 = 3.88mg/L/96hr, Algae (Chlorella) EC50 = 4,300mg/L/96hr,  
 Crustacean (Misid shrimp) LC50 = 18.3mg/L/96hr (IUCLID DATA),  
 And Crustacean (Daphnia magna) EC50 = 12.5mg/L/48hr : Category 3

(Chemicals Evaluation and Research Institute DATA

(Chemical Safety (hazard) assessment sheet))

(Chronic) Was not obtained reliable data. : Classification not possible

Acute toxicity Crustacean (PALAEMONETES PUGIO) LC50  $\geq$  500,000  $\mu$  g/L/96hr,

Fish (PIMEPHALES PROMELAS) LC50  $\geq$  500,000  $\mu$  g/L/96hr

(Environmental Risk Assessment of Chemicals Vol.1 (Ministry of the Environment,  
 Environmental Insurance Department, Environmental Risk Assessment Office))

**For Normal hexane (n-Hexane)**

(Acute) Crustacean (Daphnia magna) LC50 = 3.88mg/L/48hr (EHC122, 1991) : Category 2

(Chronic) rapid degradation (Degree of decomposition by BOD = 100%

(Safety inspection data of existing chemical substances))

Can be estimated 'Bioaccumulation is low.' : Not classified

(LOG KOW = 3.9 (PHYSROP DATABASE, 2005))

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**13. DISPOSAL CONSIDERATIONS**
**The remainder waste (Disposal of this product)**

Dispose of contents/container to waste treatment company having the official approval of laws and regulation. Incinerated in appropriate facilities.

**Pollution container and packing**

Empty container filled with water and allowed to stand for 2 days (Should not be sealed), then, disconnect the water. Used container should be punctured and scrapped, so that it is not used for any other purpose.



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**14. TRANSPORT INFORMATION**


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**International Regulations**

Land : Transport in accordance with your country and regions regulations.  
 (RID, ADR, DOT etc.)

Sea : Transport in accordance with IMDG Code.

Air : Transport in accordance with ICAO-TI/ IATA-DGR.

**UN number:** 1866  
**Proper shipping name:** Resin solution, flammable (Polyisocyanate solution)  
**Hazard class:** 3 Flammable liquid  
**Packing group:** II  
**Marine Pollutant:** Not applicable  
**IMDG class:** 3 Flammable liquid

Follow all the regulations in your country. Be sure that the container is tightly sealed, that no leakage is found and that all the necessary indications are specified. Filling, loading and extracting operations should be performed under the supervision of an authorized operator. Nitrogen gas or dry air should be charged into the container for transportation after filling or extracting.

**Ship hazardous materials transportation and storage regulations based on the Ship Safety Act:** It corresponds to "poison" hazardous materials, if you want to maritime transport, and transport you necessity to take measures in accordance with the law Ship Safety.

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**15. REGULATORY INFORMATION**


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Regulatory information with regard to this substance in your country should be examined by your own responsibility.

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**16. OTHER INFORMATION**


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This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority, products are supposed to be used promptly after purchase in consideration of safety.

Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care



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should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage.

The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe conditions of use shall be set up on each user's own responsibility.