

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking**1.1 Product Identifier: Castaldo® LiquaCast Long Life™ RTV Part A**

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against: Component for Polyurethane Mold Rubber. For Industrial/Professional use only. Do not use in toys or childcare articles that can be placed in the mouth.

1.3 Details of the Supplier of the Safety Data Sheet

Manufacturer: Company name:
Goodwin Refractory Services Ltd, Spencroft Road,
Newcastle-under-Lyme, Staffordshire, ST5 9JE, United Kingdom
Phone: +44 (0) 1782 66 36 00

1.4 Emergency Telephone Number: Chem-Tel: 1-800-255-3924 or 617-969-5399

Section 2: Hazards Identification**2.1 Classification of the Substance or Mixture:**

CLP/GHS (No 1272/2008): Acute Toxicity - Inhalation Category 4 (H332)
Skin Irritation Category 2 (H315)
Eye Irritation Category 2 (H319)
Respiratory Sensitization Category 1 (H334)
Skin Sensitization Category 1 (H317)
Carcinogenicity Category 2 (H351)
Specific Target Organ Toxicity - Single Exposure Category 3 (respiratory irritation) (H335)
EU (1999/45/EC): Carcinogen Category 3, Toxic (T) R23, R36/37/38, R40, R42/43

2.2 Label Elements: Danger!

Contains Toluene Diisocyanate and TDI Prepolymer

**Hazard Phrases**

H315 Causes skin irritation.
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.
H351 Suspected of causing cancer.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Phrases

P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing vapours or mists.
P264 Wash thoroughly after handling.
P280 Wear protective gloves, protective clothing, eye protection, and face protection.
P285 In case of inadequate ventilation, wear respiratory protection.
P362 Take off contaminated clothing and wash before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P308+P313 IF exposed or concerned: Get medical attention.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents and container to licensed, permitted incinerator, or other thermal destruction device in accordance with local and national regulations.

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Supplemental Information: Individuals sensitized to isocyanates should discontinue use. Long-term overexposure to isocyanates may cause lung damage. This is one part of a two-part system. Read and understand the hazard information on part B before using.

2.3 Other Hazards: No information available.

Section 3: Composition/Information on Ingredients

3.2 Mixtures

Chemical Name	CAS #	EINECS #	EU Classification (67/548/EEC)	CLP Annex VI Classification	%
Toluene Diisocyanate	26471-62-5	247-722-4	Carcinogen Category 3, Very Toxic (T+), R26, R36/37/38, R40, R42/43, R52/53	Acute Tox Cat 1 (H330) Skin Irrit Cat 2 (H315) Eye Irrit Cat 2 (H319) Resp Sens Cat 1 (H334) Skin Sens Cat 1 (H317) Carc Cat 2 (H351) STOT SE Cat 3 (H335) Aquatic Tox Cat 3 (H412)	≤2%
Polyether polyol-TDI prepolymer	9057-91-4	Not listed	Xn R36/37/38, R42/43	Skin Irrit Cat 2 (H315) Eye Irrit Cat 2 (H319) Resp Sens Cat 1 (H334) Skin Sens Cat 1 (H317) STOT SE Cat 3 (H335)	85-90%

See Section 16 for further information on EU and GHS Classification.

Section 4: First-Aid Measures

4.1 Description of First Aid Measures:

Eye: Rinse thoroughly with water for at least 15 minutes, holding the eyelids open to be sure the material is washed out. Get prompt medical attention.

Skin: Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention if irritation or symptoms of exposure develop. Launder clothing before re-use. Discard items that cannot be decontaminated.

Inhalation: Remove person to fresh air. Give artificial respiration if needed. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

4.2 Most important symptoms and effects, both acute and delayed: Harmful if inhaled. Causes skin and eye irritation. Vapours or mists may cause respiratory irritation. May cause allergic skin and/or respiratory reaction in sensitized persons. Symptoms include skin rash, wheezing, shortness of breath and other asthma symptoms.

4.3 Indication of any immediate medical attention and special treatment needed: Immediate medical attention is required for asthmatic symptoms or serious inhalation exposures. Respiratory symptoms, including pulmonary edema may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Persons sensitized to Diisocyanates should consult a physician before working with respiratory irritants or sensitizers.

Section 5: Fire-Fighting Measures

5.1 Extinguishing Media: Use water fog, foam, carbon dioxide or dry chemical. Do not use solid water stream. Solid stream of water into hot product may cause violent steam generation or eruption.

5.2 Special Hazards Arising from the Substance or Mixture

Unusual Fire and Explosion Hazards: Not classified as flammable or combustible. Product will burn under fire conditions.

Combustion Products: Oxides of carbon and nitrogen, isocyanates, hydrogen cyanide, dense smoke.

5.3 Advice for Fire-Fighters: Wear an approved, positive pressure, self-contained breathing apparatus and full-body protective clothing. Cool fire-exposed containers with water.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures: Remove all ignition sources. Clear non-emergency personnel from the area. Ventilate area. Wear appropriate protective clothing to prevent eye and skin contact and respiratory protection.

6.2 Environmental Precautions: Avoid release to the environment. Report spills and releases as required to appropriate authorities.

6.3 Methods and Material for Containment and Cleaning Up: Cover with an inert absorbent material and collect into an appropriate container for disposal. Do not seal the container since CO₂ is generated on contact with moisture and dangerous

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pressure buildup can occur. Decontaminate floor area with a mixture of water plus isopropyl alcohol (20%), household ammonia (10%), and detergent (2%).

6.4 Reference to Other Sections: Refer to Section 8 for protective clothing and Section 13 for disposal.

Section 7: Handling and Storage

7.1 Precautions for Safe Handling: Avoid breathing vapours or mists. Use with adequate ventilation. Avoid contact with the eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep container closed when not in use.

7.2 Conditions for Safe Storage, Including any Incompatibilities: Store indoors at temperatures between 12°C and 35°C (55°F and 95°F). Store in original, unopened containers. Protect from atmospheric moisture and water since TDI reacts with water to form CO₂ leading to potentially dangerous pressure buildup in sealed containers.

7.3 Specific end use(s): None identified

Section 8: Exposure Controls/Personal Protection

8.1 Control Parameters:

Occupational Exposure Limits:

Chemical Name	Exposure Limits
Toluene Diisocyanate (TDI)	0.08 mg/m ³ TWA, 0.16 mg/m ³ STEL France OEL 0.037 mg/m ³ TWA, 0.14 mg/m ³ STEL Belgium OEL
Polyether polyol-TDI prepolymer	None Established

Biological Exposure Index: None Established

Derived No Effect Level (DNEL): None Established

Predicted No Effect Concentration (PNEC): None Established

8.2 Exposure Controls:

Ventilation: Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits.

Respiratory Protection: If needed, an approved respirator with organic vapour cartridges may be used. For higher exposures or in an emergency, use a supplied-air respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practices.

Skin Protection: Wear impervious gloves, such as butyl rubber or nitrile rubber.

Eye Protection: Wear chemical safety goggles.

Other Protective Equipment: Wear impervious clothing to prevent skin contact and contamination of personal clothing. An eye wash and washing facility should be available in the work area.

Section 9: Physical and Chemical Properties

9.1 Information on basic Physical and Chemical Properties

Appearance: Clear pale yellow to amber liquid

Odour: Pungent, slightly sweet

Odour Threshold: Not determined

pH: Not applicable

Melting Point/Freezing Point: No data available

Boiling Point: No data available

Flash Point: >177°C (350°F) (estimated)

Evaporation Rate: No data available

Flammability (solid, gas): Not applicable

Flammable Limits: No data available

Vapour Pressure: <0.009 hPa (<0.01 mmHg) @ 20°C

Vapour Density: Not determined

Relative Density: 1.05 @ 25°C

Solubility: Insoluble in water

Partition Coefficient: n-Octanol/Water: Reacts with water

Autoignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: 5,000-10,000 cP

Explosive Properties: Not explosive

Oxidizing Properties: Not oxidizing

9.2 Other Information: None available

Section 10: Stability and Reactivity

10.1 Reactivity: Diisocyanates react with many materials and the rate of reaction increases with temperature. Reaction with water generates carbon dioxide and heat.

10.2 Chemical Stability: Stable under recommended conditions.

10.3 Possibility of Hazardous Reactions: Elevated temperatures can cause hazardous polymerization. Polymerization can be catalyzed by strong bases or water. Reaction with water generates carbon dioxide, and results in heat and pressure buildup in closed systems.

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- 10.4 Conditions to Avoid:** Avoid moisture and temperatures below 12°C and above 35°C (55-95°F) to protect product integrity.
- 10.5 Incompatible Materials:** Avoid contact with water, acids, bases, alcohols, strong oxidizers, and some metals (e.g., aluminum, zinc, brass, tin, copper).
- 10.6 Hazardous Decomposition Products:** Depends on temperature, air supply and presence of other materials (potentially isocyanate vapor, carbon monoxide, nitrogen oxides, and traces of hydrogen cyanide). Gases are released during decomposition.

Section 11: Toxicological Information

11.1 Information on Toxicological Effects:

Potential Health Effects:

Eye Contact: May cause moderate irritation. May cause temporary corneal injury.

Skin Contact: May cause irritation. Repeated skin contact may cause an allergic skin reaction. Animal studies indicate that skin contact with isocyanates may elicit respiratory sensitization.

Inhalation: At room temperature, vapours are minimal due to low volatility. Vapours or aerosols (e.g., generated during heating or spraying) may cause respiratory irritation and possibly pulmonary edema. Vapours are harmful if inhaled. May cause respiratory sensitization. For individuals sensitized to TDI, exposure may result in allergic respiratory reactions (e.g., coughing, wheezing, difficulty breathing).

Ingestion: Single oral dose toxicity is low. Ingestion may cause harmful gastrointestinal effects.

Chronic Health Effects: Repeated or prolonged exposure to isocyanates above exposure limits may cause an allergic sensitization of the respiratory tract causing an asthma-like response upon re-exposure. Repeated overexposure to isocyanates has been associated with decreased lung function. Repeated or prolonged dermal contact with this product may cause allergic skin sensitization in some individuals.

Acute Toxicity Values: TDI: Oral rat LD50 >2,000 mg/kg; Skin rabbit LD50 >9,400 mg/kg; Inhalation rat LC50 0.48 mg/L/1 hr (aerosol) (equivalent 0.24 mg/L/4 hr)

ATE_{mix} LC50 12.0 mg/L/4 hr

Skin Corrosion/Irritation: Irritating to the skin.

Eye Damage/Irritation: Irritating to the eyes.

Respiratory Irritation: Vapours and mists are irritating to respiratory system.

Respiratory Sensitization: Isocyanates are respiratory sensitizers.

Skin Sensitization: Isocyanates are skin sensitizers.

Germ Cell Mutagenicity: Genetic toxicity data from in vitro studies were negative. Animal mutagenicity studies were negative.

Carcinogenicity: In a combined chronic toxicity and carcinogenicity study rats were exposed for 6 hours/day, 5 days/week for approximately 2 years to TDI (80/20) vapour concentrations of 0, 0.05, or 0.15 ppm. Histopathology of the organs/tissues investigated showed that the type and incidence of tumours and the number of tumour-bearing rats were similar in both control and TDI treated groups. Therefore, TDI was not carcinogenic in rats after long-term inhalation to vapour concentrations of up to 0.05 ppm. In-vivo tests of oral administration have suggested carcinogenic effect by ingestion.

Reproductive Toxicity: In laboratory animals, TDI/polymeric TDI did not cause birth defects or reproductive toxicity at levels below 0.1 ppm.

Specific Target Organ Toxicity: Single Exposure: Some ingredients are classified as STOT SE Category 3 for respiratory irritation. No additional data is available. Repeat Exposure: Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to TDI/polymeric TDI aerosols.

Section 12: Ecological Information

- 12.1 Toxicity:** For Diisocyanates: The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Material is harmful to aquatic organisms (LC50/EC50/IC50/LL50/EL50 10-100 mg/L in most sensitive species).
- 12.2 Persistence and Degradability:** Diisocyanates are not readily biodegradable.
- 12.3 Bioaccumulative Potential:** Diisocyanates are not expected to bioaccumulate.
- 12.4 Mobility in Soil:** In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.
- 12.5 Results of PBT and vPvB Assessment:** TDI polymer and TDI are not considered to be PBT.
- 12.6 Other Adverse Effects:** Not applicable

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Section 13: Disposal Considerations

13.1 Waste Treatment Methods: Dispose in accordance with all local, state and federal regulations. Upon exposure to moisture, product forms an inert, non-hazardous solid.

Section 14: Transport Information

	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Transport Hazard Class(es)	14.4 Packing Group	14.5 Environmental Hazards
US DOT	None	Not Regulated	None	None	No
Canadian TDG	None	Not Regulated	None	None	No
EU ADR/RID	None	Not Regulated	None	None	No
IMDG	None	Not Regulated	None	None	No
IATA/ICAO	None	Not Regulated	None	None	No

14.6 Special Precautions for User: Not applicable

14.7 Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Section 15: Regulatory Information

15.1 Safety, Health and Environment Regulations/Legislation Specific for the Substance or Mixture:

REACH: Substances in this formulation imported to EU in >1 tonne/yr are pre-registered. This product contains a plasticizer that is restricted from being used in toys and childcare articles that can be placed in the mouth (2005/84/EC).

International Inventories: To be determined

15.2 Chemical Safety Assessment: A Chemical Safety Assessment has not been conducted.

Section 16: Other Information

GHS Classification for Reference (See Sections 2 and 3):

Acute Tox Cat 1 = Acute Inhalation Toxicity Category 1

Skin Irrit Cat 2 = Skin Irritation Category 2

Eye Irrit Cat 2 = Eye Irritation Category 2

Resp Sens Cat 1 = Respiratory Sensitization Category 1

Skin Sens Cat 1 = Skin Sensitization Category 1

Carc Cat 2 = Carcinogenicity Category 2

STOT SE Cat 3 = Specific Target Organ Toxicity - Single Exposure Category 3 (respiratory irritation)

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H330 Toxic if inhaled.

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

H412 Harmful to aquatic life with long lasting effects.

EU Classes and Risk Phrases for Reference (See Sections 2 and 3):

T+ Very toxic

T Toxic

Xn Harmful

R23 Harmful if inhaled.

R26 Very toxic by inhalation.

R36/37/38 Irritating to eyes, respiratory system and skin.

R40 Limited evidence of a carcinogenic effect.

R42/43 May cause sensitization by inhalation and skin contact.

R52/53 Harmful to aquatic organisms may cause long-term adverse effects in the aquatic environment.

Training Advice: All personnel using/handling this product should be trained in proper chemical handling and the need for and use of engineering controls and protective equipment.

SDS Revision Note: Converted to REACH format.

Disclaimer: The information contained herein is considered accurate; however, Goodwin Refractory Services Ltd makes no warranty regarding the accuracy of the information. The user must determine the suitability of the product for the intended use and accepts all risk and liability associated with that use.