



Safety Data Sheet – according to Directive 2001/58/EC

## 1 – Product and company identification

**Product name:** TELENE® 1610 A**Product number:** 1610 A**Effective date:** 31/08/2006**Company address :**

Telene S.A.S  
Route d'Arras  
62320 Drocourt  
France

**Telephone :** +33 3 21 08 83 20**Emergency Chemtrec:** + 1 703 527 3887 – 24h/24h**Product description:** Reactive injection molding resin for plastic parts

## 2 - Composition / information on ingredients

CAS-No.	Name according to EEC	%	Symbols	R-Phrases
0000077-73-6	Dicyclopentadiene	85	F, N, Xn	R11-20/22-36/37/38-51/53

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

**Notes:** No Additional Information

## 3 - Hazards identification

**Acute health effects:**

Harmful by inhalation and if swallowed. Aspiration into the lungs can cause severe pulmonary injury. Inhaling high vapor/aerosol concentrations can cause nasal and respiratory tract irritation, dizziness, drowsiness, unconsciousness, headache, weakness, and other central nervous system effects, including death. Causes eye and skin irritation.

**Chronic health effects:**

Prolonged or repeated contact may irritate the skin, causing dermatitis. Dicyclopentadiene may cause liver disorder (e.g., jaundice) and/or damage, kidney disorder (e.g., edema, proteinuria) and/or damage, and breathing disorders and/or lung damage.

**Signs/symptoms of exposure:**

Irritation.

## 4 - First aid measures

If irritation or other symptoms (as noted above) occur or persist from any route of exposure, remove the affected individual from the area: see a physician/get medical attention.

### **Eye contact:**

Immediately flush eyes with plenty of clean water for an extended time, not less than fifteen (15) minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion.

### **Skin contact:**

Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes.) Get medical attention immediately.

### **Inhalation:**

If affected, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

### **Ingestion:**

Do not induce vomiting. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal. Get medical attention immediately.

## 5 - Fire fighting measures

### **Fire and explosive properties:**

Vapors may form explosive mixtures in air under certain conditions.

### **Extinguishing media:**

Water spray (fog) can be used to absorb heat and to cool and protect surrounding exposed material. Use water spray, ABC dry chemical, "alcohol" foam or CO<sub>2</sub>. Use water to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect emergency responders attempting to stop a leak. Water spray may be used to flush spills away from exposures and to dilute spills to nonflammable mixtures.

### **Fire fighting instructions:**

Never direct a hose stream directly onto a burning flammable/combustible liquid. Solid or straight hose stream will cause fire to spread if directed onto a burning spill or into an open container of burning liquid. Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and protective clothing.

### **Unusual fire/explosion hazards:**

Irritating or toxic substances will be emitted upon burning, combustion or decomposition. Run off water from firefighting may have corrosive effects. Do not flush spill to sewer. Runoff to sewer may cause a fire or explosion hazard. Gives off volatile vapors that are heavier than air and may travel along the ground or may be moved by ventilation and ignited by flame, sparks, heaters, or other ignition sources at distant locations (flashback potential). Hot vapor or mists may be susceptible to spontaneous combustion when mixed with air. Ignition temperatures decrease with increasing

vapor volume and vapor/air contact time and are influenced by pressure changes. Therefore, ignition may occur below published ignition temperatures. Use of this product in processes involving elevated-temperatures, vacuum if subject to sudden ingress of air, sudden escape of vapor or mist, etc., must be thoroughly evaluated to assure safe operation.

## 6 - Accidental release measures

### Containment techniques:

Issue warning: "flammable liquid and vapor" Eliminate ignition sources. Ventilate area. If spill is large, isolate the hazard area. Limit access to the spill area to trained spill management personnel. Any release or unwanted discharge into water systems or surface waters should be reported immediately to the responsible authorities or agencies.

#### If a land spill:

Contain by diking with sand, earth or other noncombustible material. Prevent flow into public sewer (explosion hazard), streams or other water systems. Blanket large spills with foam to minimize fire hazard and reduce vaporization. Remove as much as possible. Absorb remainder with an inert material.

#### If water spill:

Remove from surface by skimming using explosion proof pumps and equipment or by using suiting absorbents.

### Clean-up techniques:

Place waste into closed, labeled container and store in a safe location to await disposal. Transfer contaminated earth and/or diking/spill absorbent material to closed containers for recovery or disposal. Wash the spill area to remove final traces. Personal protective equipment and clothing must be utilized by persons performing this work.

### Evacuation instructions:

Not Applicable.

## 7 - Handling and storage

### Handling:

Do not cut, puncture, or weld on or near the container. Do not get in eyes, on skin or clothing. Do not ingest, taste, or swallow. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Use under well-ventilated conditions. Avoid inhalation of aerosol, mist, spray, fume or vapor. Bond and ground all containers when transferring chemical. Use spark-proof tools and equipment. Pouring product from its container may cause an electrostatic buildup which may be discharged as a spark. A spark can be an ignition source for solvent vapor/air mixtures. Wash contaminated clothing before reuse. Provide eyewash fountains and safety showers in the work area. Emptied container may contain residual vapors or liquid which may ignite or explode. "De-molding" of finished parts may result in a flammable vapor/air mixture in and around molding equipment which may be ignited.

### Storage:

Store, transport, load, and unload at atmospheric pressure under inert atmosphere. Avoid storing containers in direct sunlight as vapors may accumulate in the head space creating pressure. Open

containers carefully and slowly. Keep container closed when not in use. Store cool and dry, under well-ventilated conditions.

## 8 - Exposure controls / personal protection

<u>Chemical Name</u>	<u>MAK Value</u>	<u>MEL / OES</u>
Dicyclopentadiene	2.70 mg/m <sup>3</sup>	27.00 mg/m <sup>3</sup>

**Notes:** DICYCLOPENTADIENE Occupational Exposure Limits:

Russia: TWA Not available. STEL 5 mg/ m<sup>3</sup>  
 Norway: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 United Kingdom: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 Portugal: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 Ireland: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 Greece: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 France: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 The Netherlands: TWA 0,5 ppm / 2,7 mg/m<sup>3</sup>  
 Germany: TWA 0.5 ppm/ 3 mg/m<sup>3</sup>  
 Denmark: TWA 0.5 ppm/ 3 mg/m<sup>3</sup>  
 Austria: TWA 0.5 ppm/ 3 mg/m<sup>3</sup> STEL = 1 ppm  
 Switzerland: TWA 0.5 ppm/3 mg/m<sup>3</sup> STEL = 0.5 ppm  
 Finland: TWA Not available. STEL =1 ppm  
 Belgium: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 Italy: TWA Not available.  
 Spain: TWA Not available  
 United States: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 Canada: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 Australia: TWA 5 ppm / 27 mg/m<sup>3</sup>  
 Israel: TWA 5 ppm / 27 mg/m<sup>3</sup>

DICYCLOPENTADIENE: The OSHA PEL of 5.00 ppm has been vacated. We recommend using the listed ACGIH TWA value. Human sensory response studies indicate DCPD vapor is detectable at concentrations as low as 0.003 ppm.

**Engineering controls:**

Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain the ambient workplace atmosphere below the exposure limit(s) outlined in the MSDS.

**Eye/face protection:**

Wear eye protection (chemical goggles or goggles and full faceshield where spilling or splashing may occur).

**Skin protection:**

Wear chemical resistant protective clothing. Wear chemical resistant (impervious) gloves.

**Respiratory protection:**

Wear a suitable approved air supplied respirator whenever exposure to aerosol, mist, spray, fume or vapor exceeds the exposure limits.

**General protection:**

No Additional Information.

## 9 - Physical and Chemical Properties

<b>Form</b>	Liquid	<b>pH</b>	Not Applicable
<b>Appearance</b>	Clear	<b>% Volatile by weight</b>	85%- 95%
<b>Odor</b>	Slight camphor	<b>Specific gravity</b>	(DCPD) ~0.98 @ 20°C
<b>Solubility in water</b>	Insoluble	<b>VOC</b>	Not Available
<b>Evaporation rate</b>	Not Available	<b>Flash point</b>	41.0 - 49.0°C
<b>Vapour pressure</b>	2.28 mmHg @20°C	<b>Boiling Point °C</b>	(DCPD) >170°C
<b>Partition coefficient</b>	3.6	<b>Vapour density</b>	(DCPD) 4.6
<b>Log Pow</b>	(DCPD)		Heavier than air
<b>Explosive range</b>	LEL (DCPD) 1.0% UEL (DCPD) 10.0%	<b>Viscosity</b>	150 – 450 mPa.s
<b>Autoignition Temperature</b>	Not Available	<b>Melting temperature</b>	-5 °C

**Notes:** Amounts specified are typical and do not represent a specification.

## 10 - Stability and reactivity

**Conditions to avoid:**

Do not expose to excessive heat or ignition sources.

**Incompatibility with other materials:**

Mixing TELENE® RIM Resin Component A and TELENE® RIM Resin Component B in non-molding operations may cause an uncontrolled exothermic reaction generating heat above 200°C and releasing vapors such as ethane (flammable) and nitrogen. Avoid contact with strong oxidizing agents. Metal chloride salts or heat can catalyze polymerization. Avoid long-term temperatures above 50 °C to prevent polymerization. Catalyst component is sensitive to air and moisture and reacts with polyols and isocyanates.

**Hazardous decomposition products:**

Potential decomposition gases have not been fully determined but may include: Hydrogen chloride, carbon monoxide, carbon dioxide, hydrocarbons, and irritating vapors. Distillation to dryness may produce peroxides. Peroxides may catalyze polymerization of DCPD at elevated temperatures. Dicyclopentadiene will decompose to cyclopentadiene at > 138 °C.

**Additional reactivity / stability information:**

TELENE® RIM Resin Component A and Component B are designed to be mixed together under controlled conditions in properly designed and operated reaction injection molding systems to produce a reacted polymer. The molding process releases volatiles such as cyclopentadiene, dicyclopentadiene, ethane, nitrogen, and norbornene monomer at temperatures significantly above their flash point. Upon heating, DCPD may convert into the monomer cyclopentadiene. Well

ventilated conditions are necessary to eliminate hazard risk. Consult with your technical service representatives for processing information.

### Thermal processing emissions:

Not Applicable

## 11 - Toxicological information

Caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

Chemical Name	LC50 Inhalation	Species	LD50 Oral	Species	LD50 Skin	Species
Dicyclopentadiene	145.00 ppm	Mouse	190.00 mg/kg	Mouse	5080.00 mg/kg	Rabbit/ adult
Chemical Name	LC50 Inhalation	Species	LD50 Oral	Species	LD50 Skin	Species
Dicyclopentadiene	660 mg/L	Rat/ adult	353.00 mg/kg	Rat/ adult	N/E	N/E

DICYCLOPENTADIENE (DCPD): Inhalation studies indicate that male rats exposed 6 hours/day, 5 days/week for 13 weeks had evidence of functional and morphologic kidney changes at 1, 5.1, and 51 ppm. Female rats and mice of both sexes were unaffected. After a three month recovery period, only the 51 ppm group showed some functional impairment although all animals retained some structural changes (most prevalent at the 51 ppm level). Since female rats and mice of both sexes were unaffected, effects of DCPD on the human kidney are unknown.

## 12 - Ecological information

### DICYCLOPENTADIENE:

96 Hour LC50 Rainbow trout 22.86 - 42.3 mg/L

48 Hour LC50 Daphnia 6.9 mg/L

Log Kow: 2.89

Bioconcentration factor of 93.2 suggests that bioconcentration in fish and aquatic organisms may occur. Volatilization of dicyclopentadiene to the atmosphere is expected to be a dominant fate process. The estimated half-life for a model river 1 m deep is 3 - 4 hours (1.2 SRC). A calculated soil absorption coefficient Koc value for dicyclopentadiene of 894 (2, SRC) suggests that sorption on sediment and suspended matter may be the important fate process (SRC). The estimated half-life for gas phase reaction of dicyclopentadiene with chemically produced hydroxyl radicals is 3.1 hour. Harmful to aquatic organisms.

**Notes:** No Additional Information.

## 13 - Disposal information

**WARNING! DO NOT MIX TELENE® RIM Resin Component A with TELENE® RIM Resin Component B for disposal because mixing of these components will generate extreme heat. Avoid skin contact to avoid burns. Before disposal, deactivate each component separately by mixing in with good agitation at least 2 liters of alcohol (e.g., propanol, ethanol or methanol) per drum of component. Dispose of waste at a licensed waste disposal company in accordance with local regulations.**

**14 - Transportation information**

**UN/NA Number:** UN 2048                      **Hazard Class:** 3                      **IMDG Class:** 3  
**Packing Group:** III                              **ICAO/IATA Class:** 3                      **TDG Class:** 3

**ADR/RID Class:** 3

**Name of Material:** Dicyclopentadiene

**Notes:** No Additional Information.

**15 - Regulatory information****EU Classification:**

Flammable, Harmful, Dangerous for the environment

**EU R phrases:**

R10                      Flammable.  
R20/22                      Harmful by inhalation and if swallowed.  
R36/37/38                      Irritating to eyes, respiratory system and skin.  
R51/53                      Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**EU S phrases:**

S23                      Do not breathe solvent vapor/spray.  
S26                      In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S28                      After contact with skin, wash immediately with plenty of water.  
S36/37                      Wear suitable protective clothing and gloves.  
S38                      In case of insufficient ventilation, wear suitable respiratory equipment.  
S61                      Avoid release to the environment. Refer to special instructions/Safety data sheets.

**EINECS / ELINCS:**

Compliant

**Water hazard classification (Germany):**

WGK 3: Severe hazard to waters (KBwS)

**U.S. Toxic Substances Control Act (TSCA):**

All components of this product are either listed on the U.S. Toxic Substances Control Act (TSCA) inventory of chemicals or are otherwise compliant with TSCA regulations.

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

All components in this product are on the Canadian Domestic Substances List (DSL) or are exempt from listing.

**Notes:** No Additional Information

<b>16 - Other Information</b>
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**Reason for revision:**

Changes in Section(s): Not Applicable.

**Notes:** Shavings, dust and/or very fine powder formed during the processing of parts/ molded products as with most finely divided materials constitute under certain conditions both a fire and explosion hazard. Specific processing, material handling and powder methods are required to safely operate fabrication facilities that generate large quantities of such materials.

**Legend:**

®: Indicates a trademark or registered trademark.

CAS No: Chemical Abstract Service Registry Number

COSHH: Control of Substances Hazardous to Health (United Kingdom)

IARC: International Agency for Research on Cancer

MAK: Maximale Arbeitsplatz-Konzentration (Maximum Workplace Concentration) (Germany)

MEL: Maximum Exposure Limit (COSHH)

N/A: Not Applicable

N/E: None Established

OES: Occupational Exposure Standard (COSHH)

S: Can be absorbed through the skin

STEL: Short Term Exposure Limit (COSHH)

TWA: Time Weighted Average (exposure for 8-hour workday).

IIIA1: Substances shown to induce malignant tumors in humans

IIIA2: Substances shown to be clearly carcinogenic only in animal studies but under conditions indicative of carcinogenic potential at the workplace

IIIB: Substances which are suspected of possessing significant carcinogenic potential which urgently needs further clarification

**Users Responsibility/Disclaimer of Liability:**

The information set forth herein is based on our current knowledge, and is intended to describe the product solely with respect to health, safety and the environment. As such, it must not be interpreted as a guarantee of any specific property of the product. As a result, the customer shall be solely responsible for deciding whether said information is suitable and beneficial.

**Safety Data Sheet Preparer:**

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