



# SAFETY DATA SHEET

ROHM AND HAAS ELECTRONIC MATERIALS CMP  
SDN. BHD.

**Product name:** CYCLOTENE™ 4022-35 Advanced Electronics  
Resin

**Issue Date:** 03/07/2019

**Print Date:** 01/17/2020

ROHM AND HAAS ELECTRONIC MATERIALS CMP SDN. BHD. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

---

## 1. PRODUCT AND COMPANY IDENTIFICATION

---

**Product name:** CYCLOTENE™ 4022-35 Advanced Electronics Resin

### Recommended use of the chemical and restrictions on use

**Identified uses:** Photodefinable polymer dielectric in microelectronic applications. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

### COMPANY IDENTIFICATION

ROHM AND HAAS ELECTRONIC MATERIALS CMP  
SDN. BHD.

A Subsidiary of The Dow Chemical Company  
22 PERSIARAN BAYAN INDAH, BAYAN BAY  
SUNGAI NIBONG  
11900 PENANG  
Pulau Pinang  
MALAYSIA

**Customer Information Number:**

60-32-859-0700  
SDSQuestion-AP@dupont.com

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 1800-82-0055

**Local Emergency Contact:** 800 101 2201 / (65) 3158 1349

---

## 2. HAZARDS IDENTIFICATION

---

### GHS Classification

Flammable liquids - Category 3  
Skin corrosion/irritation - Category 2  
Serious eye damage/eye irritation - Category 2  
Skin sensitisation - Category 1  
Specific target organ toxicity - single exposure - Category 3  
Aspiration hazard - Category 1  
Long-term (chronic) aquatic hazard - Category 2

### GHS label elements

**Hazard pictograms**



Signal word: **DANGER!**

#### Hazard statements

Flammable liquid and vapour.  
May be fatal if swallowed and enters airways.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye irritation.  
May cause respiratory irritation.  
Toxic to aquatic life with long lasting effects.

#### Precautionary statements

##### Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
Avoid release to the environment.  
Wear protective gloves/ eye protection/ face protection.

##### Response

IF SWALLOWED: Immediately call a POISON CENTER/doctor.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.  
Do NOT induce vomiting.  
If skin irritation or rash occurs: Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

#### Other hazards

No data available

---

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

---

This product is a mixture.

Component	CASRN	Concentration
B-Staged divinylsiloxane-bis-benzocyclobutene resin	124221-30-3	26.0 - 39.0 %
1,3,5-Trimethylbenzene	108-67-8	55.0 - 73.0 %

---

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers	26780-96-1	0.3 - 3.1 %
2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone	114391-97-8	0.3 - 2.7 %

---

## **4. FIRST AID MEASURES**

---

### **Description of first aid measures**

#### **General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

#### **Most important symptoms and effects, both acute and delayed:**

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### **Indication of any immediate medical attention and special treatment needed**

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

---

## 5. FIREFIGHTING MEASURES

---

**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

**Unsuitable extinguishing media:** No data available

### **Special hazards arising from the substance or mixture**

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Aromatic hydrocarbons.

**Unusual Fire and Explosion Hazards:** Container may vent and/or rupture due to fire. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Dense smoke is produced when product burns.

### **Advice for firefighters**

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Do not use direct water stream. May spread fire. Eliminate ignition sources. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

**Personal precautions, protective equipment and emergency procedures:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Vapor explosion hazard. Keep out of sewers. Ventilate area of leak or spill. Keep upwind of spill. Keep personnel out of low areas. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. See Section 10 for more specific information. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Material may float on water and any runoff may create an explosion or fire hazard if ignited. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Large spills: Pump with explosion-proof equipment. If available, use foam to smother or suppress.

Use non-sparking tools in cleanup operations. Small spills: Absorb with materials such as: Sand. Sawdust. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

---

## 7. HANDLING AND STORAGE

---

**Precautions for safe handling:** Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Avoid breathing vapor. Do not swallow. Use with adequate ventilation. Keep container closed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Minimize sources of ignition, such as static build-up, heat, spark or flame. See Section 10 for more specific information.

---

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

---

### Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
1,3,5-Trimethylbenzene	ACGIH	TWA	25 ppm
	SG OEL	PEL (long term)	123 mg/m3 25 ppm

### Exposure controls

**Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

### Individual protection measures

**Eye/face protection:** Use safety glasses (with side shields). If exposure causes eye discomfort, use a full-face respirator.

#### Skin protection

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Viton. Polyvinyl chloride ("PVC" or "vinyl"). Styrene/butadiene rubber. Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Butyl rubber. Neoprene. Chlorinated polyethylene. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

### Appearance

Physical state	Liquid.
Color	Pale Yellow to Amber
Odor	Aromatic
Odor Threshold	No test data available
pH	Not applicable
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	162 °C <i>Literature</i>
Flash point	<b>closed cup</b> 44 °C <i>Literature</i> (setaflash)
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	0.88 % vol <i>Literature</i>
Upper explosion limit	6.1 % vol <i>Literature</i>
Vapor Pressure	3.3 hPa at 25 °C <i>Literature</i>
Relative Vapor Density (air = 1)	4.1 <i>Literature</i>
Relative Density (water = 1)	0.9521 <i>Literature</i>
Water solubility	<i>Literature</i>
Partition coefficient: n-octanol/water	This product is a mixture. See Section 12 for individual component data.
Auto-ignition temperature	550 °C <i>Literature</i>
Decomposition temperature	No test data available
Kinematic Viscosity	192 mm <sup>2</sup> /s at 25 °C <i>Supplier</i>
Explosive properties	No data available
Oxidizing properties	No data available
Liquid Density	0.9521 g/cm <sup>3</sup> <i>ASTM B311</i>
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

---

## **10. STABILITY AND REACTIVITY**

---

**Reactivity:** No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7.  
Unstable at elevated temperatures.

**Possibility of hazardous reactions:** Can occur. Can react with itself at temperatures above 100°C (212°F).

**Conditions to avoid:** Avoid temperatures above 40°C (104°F). Can react with itself at temperatures above 100°C (212°F). Active ingredient decomposes at elevated temperatures. Avoid static discharge. Avoid direct sunlight or ultraviolet sources.

**Incompatible materials:** Avoid contact with: Strong oxidizers.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials.

---

## **11. TOXICOLOGICAL INFORMATION**

---

*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Single dose oral LD50 has not been determined.

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

The dermal LD50 has not been determined.

#### **Acute inhalation toxicity**

The LC50 has not been determined.

Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression.

### **Skin corrosion/irritation**

Prolonged contact may cause skin irritation with local redness.

Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

May cause drying and flaking of the skin.

May cause more severe response on covered skin (under clothing, gloves).

**Serious eye damage/eye irritation**

May cause eye irritation.

Vapor may cause eye irritation experienced as mild discomfort and redness.

**Sensitization**

A component in this mixture has caused allergic skin reactions in humans.

For respiratory sensitization:

No relevant information found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

May cause respiratory irritation.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

Contains component(s) which did not cause birth defects in animals; other fetal effects occurred only at doses toxic to the mother.

**Reproductive toxicity**

In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals.

**Mutagenicity**

For the component(s) tested: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

May be fatal if swallowed and enters airways.

**COMPONENTS INFLUENCING TOXICOLOGY:**

**B-Staged divinylsiloxane-bis-benzocyclobutene resin**

**Acute oral toxicity**

Single dose oral LD50 has not been determined.

**Acute dermal toxicity**

The dermal LD50 has not been determined.

**Acute inhalation toxicity**

The LC50 has not been determined.

**1,3,5-Trimethylbenzene**

**Acute oral toxicity**

LD50, Rat, male, 6,000 mg/kg

**Acute dermal toxicity**

LD50, Rat, male and female, > 3,440 mg/kg No deaths occurred at this concentration.



**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, vapour, > 10.2 mg/l No deaths occurred following exposure to a saturated atmosphere.

**Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers**

**Acute oral toxicity**

LD50, Rat, > 2,000 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, 5,100 mg/kg Estimated.

**Acute inhalation toxicity**

For the polymer(s): Dust may cause irritation to upper respiratory tract (nose and throat).

**2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone**

**Acute oral toxicity**

LD50, Rat, > 5,000 mg/kg

**Acute dermal toxicity**

LD50, Rabbit, > 2,000 mg/kg

**Acute inhalation toxicity**

Vapor may cause irritation of the upper respiratory tract (nose and throat).

---

## **12. ECOLOGICAL INFORMATION**

---

*Ecotoxicological information appears in this section when such data is available.*

**Ecotoxicity**

**B-Staged divinylsiloxane-bis-benzocyclobutene resin**

**Acute toxicity to fish**

No relevant data found.

**1,3,5-Trimethylbenzene**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Carassius auratus (goldfish), flow-through test, 96 Hour, 12.5 mg/l, Method Not Specified.

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), Static, 48 Hour, 6 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

EbC50, Desmodesmus subspicatus (green algae), 48 Hour, Biomass, 25 mg/l, OECD Test Guideline 201 or Equivalent

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.4 mg/l

**Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers**

**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Lepomis macrochirus (Bluegill sunfish), 96 Hour, 54 mg/l, OECD Test Guideline 203 or Equivalent

LC50, Pimephales promelas (fathead minnow), 96 Hour, 64 mg/l, OECD Test Guideline 203 or Equivalent

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 50 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 24 Hour, > 1,000 mg/l, Method Not Specified.

**Toxicity to bacteria**

EC50, Bacteria, 3 Hour, > 10,000 mg/l

**2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone**

**Acute toxicity to fish**

No relevant information found.

**Persistence and degradability**

**B-Staged divinylsiloxane-bis-benzocyclobutene resin**

**Biodegradability:** No relevant data found.

**1,3,5-Trimethylbenzene**

**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301C or Equivalent

10-day Window: Not applicable

**Biodegradation:** 50 %

**Exposure time:** 4.4 d

**Method:** Calculated.

**Theoretical Oxygen Demand:** 3.19 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 3.7 Hour

**Method:** Estimated.

**Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers**

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Not applicable

**Biodegradation:** 0 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301C or Equivalent

**2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone**

**Biodegradability:** No relevant information found.

**Bioaccumulative potential**

**B-Staged divinylsiloxane-bis-benzocyclobutene resin**

**Bioaccumulation:** No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

**1,3,5-Trimethylbenzene**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 3.42 Measured

**Bioconcentration factor (BCF):** 161 Pimephales promelas (fathead minnow) Measured

**Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers**

**Bioaccumulation:** Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

**Partition coefficient: n-octanol/water(log Pow):** 1.2 - 7.7

**2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone**

**Bioaccumulation:** Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7). Expected to be relatively immobile in soil (Koc > 5000).

**Partition coefficient: n-octanol/water(log Pow):** 9.67 Estimated.

**Mobility in Soil**

**B-Staged divinylsiloxane-bis-benzocyclobutene resin**

No relevant data found.

**1,3,5-Trimethylbenzene**

Potential for mobility in soil is low (Koc between 500 and 2000).

**Partition coefficient (Koc):** 741.65 Estimated.

**Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers**

No relevant data found.

**2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone**

**Partition coefficient (Koc):** 20000 Estimated.

**Results of PBT and vPvB assessment**

**B-Staged divinylsiloxane-bis-benzocyclobutene resin**

This substance is not considered to be very persistent and very bioaccumulating (vPvB).

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

**1,3,5-Trimethylbenzene**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

**Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

**2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone**

This substance is not considered to be very persistent and very bioaccumulating (vPvB).

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

**Other adverse effects**

**B-Staged divinylsiloxane-bis-benzocyclobutene resin**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**1,3,5-Trimethylbenzene**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Quinoline, 1,2-dihydro-2,2,4-trimethyl-, polymers**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**2,6-Bis((4-azidophenyl)methylene)-4-ethylcyclohexanone**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

---

## 13. DISPOSAL CONSIDERATIONS

---

**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information.

---

## 14. TRANSPORT INFORMATION

---

**Classification for ROAD and Rail transport:**

Proper shipping name	RESIN SOLUTION
UN number	UN 1866
Class	3
Packing group	III
Environmental hazards	1,3,5-Trimethylbenzene

**Classification for SEA transport (IMO-IMDG):**

Proper shipping name	RESIN SOLUTION
UN number	UN 1866
Class	3
Packing group	III

<b>Marine pollutant</b>	1,3,5-Trimethylbenzene
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Resin solution
<b>UN number</b>	UN 1866
<b>Class</b>	3
<b>Packing group</b>	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

---

## 15. REGULATORY INFORMATION

---

### Workplace Classification

This product is classified as hazardous according to Singapore Standards, Act and Regulations.

**The following statutes, regulations and standards have the related prescribes on chemicals in terms of safe use, storage, transportation, loading and unloading, classification and symbol etc.**

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations  
Environmental Protection and Management Act and Environmental Protection and Management (Hazardous Substances) Regulations  
Chemical Weapons Prohibition Act

**Fire Safety (Petroleum and Flammable Materials) Regulations** : Not applicable

---

## 16. OTHER INFORMATION

---

### Revision

Identification Number: 129535 / 1321 / Issue Date: 03/07/2019 / Version: 6.1

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
PEL (long term)	Permissible Exposure Level (PEL) Long Term
SG OEL	Singapore. Workplace Safety and Health Act - First Schedule Permissible Exposure Limits of Toxic Substances
TWA	8-hour, time-weighted average

**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

ROHM AND HAAS ELECTRONIC MATERIALS CMP SDN. BHD. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The

information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

SG