

Material Safety Data Sheet

ACCUGLASS® "T-12B"(312B, 412B, 512B) SPIN-ON GLASS

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ACCUGLASS® "T-12B" (312B,412B,512B) Spin-On Glass

OTHER/GENERIC NAMES: ACCUGLASS® 312B Spin-On Glass, ACCUGLASS® 412B Spin-On Glass, ACCUGLASS® 512B Spin-On Glass, Siloxane Spin-on Glass, Methyl Siloxane Spin-on Polymer, SOG.

PRODUCT USE: Planarization coating, smothering layer, and/or dielectric layer for integrated circuit manufacture.

MANUFACTURER: Honeywell International.
3500 Garrett Drive
Santa Clara, California 95054-2827

FOR MORE INFORMATION CALL:
(Monday-Friday, 8:00am-5:00pm) (PST)
Product Safety Department
408-962-2000

IN CASE OF EMERGENCY CALL:
CHEMTREC®
(24 Hours/Day, 7 Days/Week)
800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>INGREDIENT NAME</u> | <u>CAS NUMBER</u> | <u>WEIGHT %</u> |
|-------------------------|-------------------|-----------------|
| Methyl Siloxane Polymer | N/A | 12-17 |
| Acetone | 67-64-1 | 11-19 |
| Ethyl Alcohol | 64-17-5 | 28-36 |
| Isopropanol | 67-63-0 | 25-35 |
| Water | None | Remainder |

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Clear volatile flammable liquid. Has alcohol/ketone like odor. Liquid can cause irritation human tissues. Do not get on skin, eyes, or clothing, and do not breathe vapors. Honeywell International has not investigated the complete physical and toxicological properties of this mixture, so all exposure should be avoided. This material should be handled by technically qualified individuals.

POTENTIAL HEALTH HAZARDS

SKIN: Material may be readily absorbed through skin to produce toxic effects similar to those described for inhalation. Repeated or extended contact may also cause erythema (reddening of skin) or dermatitis, resulting from a defatting action on tissue.

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EYES: Vapors may irritate slightly. Direct contact with liquid causes intense stinging and burning sensations, resulting in inflammation and transient corneal opacity (based on alcohol content).

INHALATION: Vapors, when inhaled, can irritate eyes, nose and throat. Greater exposure can produce headache and incoordination; gross overexposure may result in respiratory depression and adverse (narcotic) effect on the central nervous system.

INGESTION: Harmful if swallowed. May irritate or burn the digestive tract, resulting in severe nausea, vomiting, and abdominal pain. However, overall toxicity is estimated to be moderate to low, based on toxicity of individual components. Possible liver and kidney injury may result. Aspiration into lungs may occur during ingestion or vomiting, resulting in lung damage.

DELAYED EFFECTS: None Known.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

| <u>INGREDIENT NAME</u> | <u>NTP STATUS</u> | <u>IARC STATUS</u> | <u>OSHA LIST</u> |
|------------------------|-------------------|--------------------|------------------|
|------------------------|-------------------|--------------------|------------------|

There are no ingredients listed in this section

4. FIRST AID MEASURES

SKIN: Promptly wash with plenty of soap and water, then flush skin with water until chemical is removed. Remove contaminated clothing and wash before reuse.

EYES: Immediately flush eyes with plenty of water, continuing for 15 minutes. Get medical attention and evaluation.

INHALATION: Remove promptly to fresh air; keep warm. If symptoms persist, call a physician. If not breathing, give artificial respiration, preferably mouth-to-mouth. Give oxygen as need, provided a qualified operator is available.

INGESTION: Do not induce vomiting. Seek medical attention immediately.

ADVICE TO PHYSICIAN: Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: 28 to 34°F

FLASH POINT METHOD: Tag Closed

AUTOIGNITION TEMPERATURE: 537°C (based on acetone)

UPPER FLAME LIMIT (volume % in air): 12.8% (based on acetone)

LOWER FLAME LIMIT (volume % in air): 2.6% (based on acetone)

FLAME PROPAGATION RATE (solids): Not determined

OSHA FLAMMABILITY CLASS: Class 1B Flammable Liquid

EXTINGUISHING MEDIA:

Dry chemical, carbon dioxide or 'alcohol type' foam can be used. Water spray, gently applied, can also be used as an extinguishing agent.

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UNUSUAL FIRE AND EXPLOSION HAZARDS:

Vapors will ignite when they reach a source of ignition and are within the flammable range. Avoid using solid hose streams which may cause frothing. Water spray can be used for firefighting and should be gently applied. Large amounts of water may be useful in diluting spilled material to point where they become nonflammable.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Firefighters should wear self-contained, NIOSH-approved breathing apparatus and full protective clothing. Use water spray to keep fire-exposed containers cool and to reduce vapor concentrations. After use, flush area with water to prevent reignition.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment)

Remove all ignition sources. Evacuate area. Evacuate unprotected personnel. Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Cover with activated carbon absorbent or with inert material such as vermiculite and collect in covered glass or steel container. Using nonsparking tools, place in containers. Ventilate area and wash spill site after material pickup is complete.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment.)

Avoid eye and skin contact; do not get on clothing. Do not breathe vapor or mist. Keep away from sparks or open flame. Wash thoroughly after handling. Keep container closed when not in use. Use with adequate ventilation.

STORAGE RECOMMENDATIONS:

Store in well ventilated area, out of sun and away from heat and ignition sources. Remove closures carefully to relieve possible internal pressure. Keep upright and protect from damage. Refrigerate to prolong material shelf-life.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Use in well exhausted areas. Handling should be preferably carried out in a closed system (e.g., exhaust hood). System should be of explosion-proof construction. Electrical equipment should meet requirements for Class I Group D (National Electrical Code NFPA 70).

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

For handling in closed ventilation system, wear protective gloves and apron (preferred material: butyl rubber/nitrile). For leaks or spills or other emergency situations, use full protective clothing, including boots. Remove immediately any wet contaminated clothing because of flammability hazard.

EYE PROTECTION:

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For handling in a closed ventilation system recommended above, wear safety glasses with non-perforated side shields. For leak or spill or other emergency use chemical safety goggles and face shield.

RESPIRATORY PROTECTION:

None if handled in closed ventilation system recommended above. For spill, leak or other emergency where mist or vapor are concentrated, use self-contained breathing apparatus or air-supplied respirator, NIOSH approved. For lower concentrations, use a cartridge respirator with an organic vapor cartridge, also NIOSH approved.

ADDITIONAL RECOMMENDATIONS:

Provide eye wash stations and quick-drench shower facilities.

EXPOSURE GUIDELINES: (Guidelines exist for the following ingredients)

| <u>INGREDIENT NAME</u> | <u>ACGIH TLV</u> | <u>OSHA PEL</u> | <u>OTHER LIMIT</u> |
|------------------------|---------------------------------|-----------------------------------|--------------------|
| Acetone | 500 ppm (TWA) 750 ppm (STEL) | 1000 ppm (TWA) 1000 ppm (STEL) | None |
| Ethyl Alcohol | 1000 ppm (TWA) | 1000 ppm (TWA) | None |
| Isopropyl Alcohol | 400 ppm (TWA) 500 ppm (STEL) | 400 ppm (TWA) 500 ppm (STEL) | None |

- * = Limit established by Honeywell for internal use.
- ** = Workplace Environmental Exposure Level (AIHA).
- *** = Biological Exposure Index (ACGIH).

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

Unknown

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear solution

PHYSICAL STATE: Liquid

ODOR: Alcohol/ketone-like odor

SPECIFIC GRAVITY (water = 1.0): 0.8 to 0.9 g/cc

SOLUBILITY IN WATER (weight %): Less than or equal to 89%.

pH: Not determined

BOILING POINT: Approximately 74 - 78° C

MELTING POINT: Not determined

VAPOR PRESSURE: < 182 (acetone component)

VAPOR DENSITY (air = 1.0): Not determined

EVAPORATION RATE: Less than 1

COMPARED TO: Ether

% VOLATILES: 83 - 88%

FLASH POINT: 28 to 34° F

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

NORMALLY STABLE? (CONDITIONS TO AVOID):

Stable under ordinary conditions of use and storage.

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INCOMPATIBILITIES:

Reacts with strong oxidants, including halogens and alkalis. Active metals will react with alcohol solvent.

HAZARDOUS DECOMPOSITION PRODUCTS:

Combustion products would include carbon monoxide, carbon dioxide, and oxides of silicon.

HAZARDOUS POLYMERIZATION:

Will not occur.

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Acetone:

Rat: LD50-Route: Intravenous; Dose: 5500mg/kg
LD50-Route: Oral; Dose: 5800mg/kg
LC50-Route: Inhalation; Dose: 50100mg/m³/8H
Mouse: LD50-Route: Intraperitoneal; Dose: 1297mg/kg
LD50-Route: Oral; Dose: 3gm/kg
LC50-Route: Inhalation; Dose: 44gm/m³/4H
Rabbit: LD50-Route: Oral; Dose: 5340mg/kg

Ethyl Alcohol:

Rat: LC50-Route: Inhalation; Dose: 20000ppm/10H
LD50-Route: Intraperitoneal; Dose: 3600ug/kg
LD50-Route: Oral; Dose: 7060mg/kg
Mouse: LC50-Route: Inhalation; Dose: 39gm/m³/4H
LD50-Route: Intraperitoneal; Dose: 528mg/kg
LD50-Route: Oral; Dose: 3450mg/kg
Rabbit: LD50-Route: Intraperitoneal; Dose: 963mg/kg
LD50-Route: Oral; Dose: 6300mg/kg

Isopropanol:

Rat: LC50-Route: Inhalation; Dose: 16000ppm/8H
LD50-Route: Intraperitoneal; Dose: 2735mg/kg
LD50-Route: Oral; Dose: 5045mg/kg
Mouse: LD50-Route: Intraperitoneal; Dose: 4477mg/kg
LD50-Route: Oral; Dose: 3600mg/kg
Rabbit: LD50-Route: Intraperitoneal; Dose: 667mg/kg
LD50-Route: Oral; Dose: 6410mg/kg
LD50-Route: Skin; Dose: 12800mg/kg

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

Not Available

OTHER DATA:

The physical and toxicological properties of this material have not been thoroughly investigated.

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12. ECOLOGICAL INFORMATION

The solvents are biodegradable; the polymer is not biodegradable. Prevent from entering sewer or water body.

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes
If yes, the RCRA ID number is: D001

OTHER DISPOSAL CONSIDERATIONS:

Disposal of these materials may be subject to federal, state and local regulations. Users should review their operations in terms of applicable federal, state and local laws and regulations, then consult with appropriate regulatory agencies before discharging or disposing of waste material. Incineration of waste material in an EPA-approved facility is recommended, allowing a solid, inert residue to form.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Class 3, Flammable Liquid

US DOT ID NUMBER: UN1993

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: All components within the product solution are listed on the TSCA Chemical Substances Master Inventory or fall under an LVE.

OTHER TSCA ISSUES: None known

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

| <u>INGREDIENT NAME</u> | <u>SARA/CERCLA RQ (lb)</u> | <u>SARA EHS TPQ (lb)</u> |
|------------------------|----------------------------|--------------------------|
| Acetone | 5000 | None |

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Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate. Delayed. Fire.

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

INGREDIENT NAME

COMMENT

There are no ingredients listed in this section

STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME

WEIGHT %

COMMENT

Acetone

11-19

FL, IL, MA, NJ, PA, RI

Ethanol

28-36

FL, IL, MA, NJ, PA, RI

Isopropanol

25-35

FL, LA, MA, NJ, PA, RI

ADDITIONAL REGULATORY INFORMATION:

None determined

WHMIS CLASSIFICATION (CANADA):

Unknown

FOREIGN INVENTORY STATUS:

Unknown

16. OTHER INFORMATION

CURRENT ISSUE DATE: April 3, 2002

PREVIOUS ISSUE DATE: February 20, 2001

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Update to include 312B,412B, and 512B products in one MSDS.

OTHER INFORMATION: For laboratory or manufacturing use. Not for food or drug use. Do not store with foodstuffs.