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## SAFETY DATA SHEET

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Material Trade Name:** QPAC® 100

**Product/Chemical Name:** Poly(cyclohexene propylene carbonate)

**Chemical Family:** Aliphatic Polycarbonate

**Manufacturer:**

Empower Materials  
91 Lukens Drive, Suite E  
New Castle, DE 19720 - USA  
302-225-0100

**Emergency Telephone Numbers:**

Chemtrec 1-800-424-9300 U.S.  
1-703-527-3887 International

**Use(s) of the substance/the mixture:**

Laboratory chemicals, Manufacture of substances.

**Restriction(s) on the use of the substance/the mixture:**

None known.

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### SECTION 2 - HAZARDS IDENTIFICATION

**Classification of the Substance or Mixture**

QPAC® 100 is composed of no less than 94% Poly(Cyclohexene Polypropylene Carbonate) polymer and contains less than 1% (between 0.2%-0.8%) methylene chloride, less than 5% cyclohexene carbonate and less than 5% propylene carbonate.

Methylene chloride is GHS classified as H351: “Suspected of causing cancer” in accordance with 29 CFR 1910.1200 Appendix A (OSHA HCS) Carcinogenicity (methylene chloride: Category 2)

Propylene carbonate is GHS classified as H319: “Causes serious eye irritation” in accordance with 29 CFR 1910.1200 Appendix A (OSHA HCS) Eye Irritation (Propylene carbonate: Category 2A)

**Exposure limits of pure Methylene Chloride:**

Refer to the OSHA Methylene Chloride Standard [OSHA3144-06R (2003)]: sets a permissible exposure limit (PEL) of 25 parts methylene chloride per million parts of air (ppm) as an eight-hour time-weighted average (TWA). This refers to the average exposure during an eight-hour period. Employers must use engineering and work practice controls to limit employee exposures. Respiratory protection must be used in addition if these controls are insufficient to reduce exposures to below the limits.

The action level for airborne methylene chloride is set at a concentration of 12.5 ppm, calculated as an eight-hour TWA. Reaching or exceeding the action level signals that employers must begin

compliance activities such as exposure monitoring and medical surveillance. There is also a short-term exposure limit (STEL) of 125 ppm, as measured over a 15-minute period.

### **GHS Label Elements, Including Precautionary Statements:**

#### **Hazard Pictograms**



**Signal Word: Warning!**

#### **Hazard Statements**

Eye Irritation: H319 Causes serious eye irritation.

#### **Hazards not Otherwise Classified (HNOC) or Not Covered by GHS**

Avoid contact with strong oxidizing agents.

Avoid temperatures above 150 °C.

At process temperatures irritating fumes may be produced.

Hazardous Decomposition Products: Propylene carbonate when burned may form toxic levels of carbon monoxide, carbon dioxide, propylene oxide, formaldehyde, other irritating aldehydes, acids and ketones. Other hazardous products may occur under conditions of decomposition or combustion, and/or result from interaction with other materials and/or environment of decomposition or combustion.

Molten polymer may cause thermal burns.

Slipping hazard if spilled on hard smooth walking surface.

The material may accumulate static charges, which could be a source of ignition.

#### **Emergency Overview**

Avoid contact with eyes, skin or clothing. Avoid breathing dust or vapor from granulates or powder. Do not swallow. Wear safety glasses and latex gloves.

Wash thoroughly after handling. Use with adequate ventilation. May produce hazardous gases under fire conditions.

During emergencies, wear equipment to protect eyes, skin, and respiratory tract. Prevent material and run-off from entering sewer or waterways. Consult the Safety Data Sheet.

#### **Conditions aggravated by exposure**

No human or animal health effects data are known to exist. However, available toxicity information on polymers of molecular weight 1000 or greater suggests they have low toxicity.

May contain 0.2 – 0.8% methylene chloride. Pure methylene chloride is a suspected human carcinogen.

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## **SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

Ingredient (s)	CAS Number	%
Poly(Cyclohexene Polypropylene Carbonate)	119727-39-8	94+ %
Propylene carbonate	108-32-7	0 – 5 %
Cyclohexene Carbonate	-----	0 – 5 %
Methylene Chloride	75-09-2	0.2 – 0.8 %

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## **SECTION 4 - FIRST AID MEASURES**

### **Description of First Aid Measures:**

#### **Eye Contact:**

Immediately flush with plenty of water for 15 minutes while holding back eyelids occasionally. Call a physician.

#### **Skin Contact:**

In case of skin contact, wash with soap and water.

#### **Ingestion/Swallowed:**

In case of ingestion have victim drink plenty of water. Call a physician.

#### **Inhalation:**

Immediately remove victim to fresh air. If breathing becomes difficult, call a physician.

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

The most important known symptoms and effects are described in section 2.

#### **Identification of any immediate medical attention and special treatment needed:**

No data available.

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## **SECTION 5 - FIRE FIGHTING MEASURES**

### **Extinguishing Media**

#### **Suitable extinguishing media:**

Use water spray, alcohol resistant foam, dry chemical or carbon dioxide.

#### **Special Hazards Arising From the Substance or Mixture Combustion Products:**

Propylene carbonate when burned may form toxic levels of carbon monoxide, carbon dioxide, propylene oxide, formaldehyde, other irritating aldehydes, acids and ketones. Other hazardous products may occur under conditions of decomposition or combustion, and/or result from interaction with other materials and/or environment of decomposition or combustion.

#### **Explosion Hazard:**

Avoid generating dust; Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**Sensitive to Static Discharge:**

Static discharge could be an ignition source for a combustible concentration of dust.

**Advice for Firefighters:**

Wear self-contained breathing apparatus for firefighting if necessary.

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**SECTION 6 - ACCIDENTAL RELEASE MEASURES****Personal Precautions, Protective Equipment and Emergency Procedures:**

Wear protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas.

**Environmental Precautions:**

Do not allow to enter sewers/surface or ground water.

**Methods and Materials for Containment and Cleaning Up:**

Sweep up and shovel. Keep in suitable closed containers for appropriate disposal.

**Reference to Other Sections:**

See section 7 for information on safe handling

See section 8 for information on personal protection equipment

See section 13 for disposal information

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**SECTION 7 - HANDLING / STORAGE****General Procedures:**

Comply with legal requirements. Keep away from heat, sparks and flame. Avoid dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

**Precautions for Safe Handling:**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust information should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.

**Conditions for Safe Storage, Including Any Incompatibilities:**

Keep container tightly closed in a dry and well-ventilated place.

**Specific end use(s)**

Apart from the uses mentioned in section 1, no other specific uses are stipulated.

**Incompatibility:**

Incompatible with strong oxidizing agents

Temperature above 150 °C

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## **SECTION 8 - EXPOSURE CONTROL AND PERSONAL PROTECTION**

### **Control Parameters:**

#### **Components with workplace control parameters:**

Contains less than 1% (between 0.2%-0.8%) methylene chloride, less than 1% (between 0.2%-0.8%) cyclohexene carbonate, and less than 5% propylene carbonate

### **Exposure Controls:**

#### **Engineering Controls:**

Provide adequate room ventilation. Provide adequate ventilation in areas where vapors can be generated (e.g. methylene chloride). Eliminate ignition sources in areas where dust could be generated (e.g. dust collectors). Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). It is recommended that all dust control equipment such as local exhaust ventilation contain explosion relief vents or an explosion suppression system.

#### **Ventilation:**

Local, mechanical exhaust ventilation recommended especially when used in thermal processing or spray applications. Work areas must be well ventilated to maintain low methylene chloride vapor concentration.

#### **Exposure limits:**

Refer to the OSHA standard for methylene chloride for additional information. The OSHA standard sets a permissible exposure limit (PEL) of 25 parts methylene chloride per million parts of air (ppm) as an eight-hour time-weighted average (TWA). This refers to the average exposure during an eight-hour period. Employers must use engineering and work practice controls to limit employee exposures. Respiratory protection must be used in addition if these controls are insufficient to reduce exposures to below the limits.

The action level for airborne methylene chloride is set at a concentration of 12.5 ppm, calculated as an eight-hour TWA. Reaching or exceeding the action level signals that employers must begin compliance activities such as exposure monitoring and medical surveillance. There is also a short-term exposure limit (STEL) of 125 ppm, as measured over a 15-minute period.

#### **Personal Protective Equipment:**

Safety glasses and gloves.

##### **Respiratory Protection**

If excessive dusting occurs or methylene chloride levels are above the limits, wear NIOSH/MSHA approved dust/mist respirator.

##### **Skin Protection**

Chemical resistant gloves and apron. Wear gloves to prevent contact with molten resins.

##### **Eye Protection**

Wear safety glasses during normal use.

Eye wash fountain and emergency shower should be provided in work.

## **SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	Clear to slight tan pellets or white to off-white granulates
<b>Upper/Lower Flammability or explosive limits</b>	No data available
<b>Odor</b>	No odor
<b>Vapor Pressure</b>	No data available
<b>Odor Threshold</b>	No data available
<b>Vapor Density</b>	No data available
<b>pH</b>	No data available
<b>Relative Density</b>	1.04 (H <sub>2</sub> O = 1)
<b>Melting Point/Freezing Point</b>	No data available
<b>Solubility in Water</b>	Insoluble
<b>Initial Boiling Point and Boiling Range</b>	No data available
<b>Flash Point</b>	No data available
<b>Evaporation Rate</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Auto-Ignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	Decomposes above 180°C (356 °F)
<b>Viscosity</b>	No data available
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available
<b>Other information</b>	No data available

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## **SECTION 10 - STABILITY AND REACTIVITY**

**Reactivity:**

No data available.

**Chemical Stability:**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:**

No data available.

**Incompatible Materials:**

Strong oxidizing agents.

**Hazardous Decomposition Products:**

Propylene carbonate when burned may form toxic levels of carbon monoxide, carbon dioxide, propylene oxide, formaldehyde, other irritating aldehydes, acids and ketones. Other hazardous products may occur under conditions of decomposition or combustion, and/or result from interaction with other materials and/or environment of decomposition or combustion.

In the event of fire: see section 5.

**Materials and Conditions to Avoid:**

Keep away from excess heat and temperatures above 150°C. During the initial mild decomposition, the polymer decomposes primarily to propylene carbonate. Further decomposition of the polymer and the propylene carbonate can produce propylene oxide, carbon dioxide, and other unknown materials both gaseous and solid. There is evidence that propylene oxide causes tumors in laboratory animals. The OSHA and ACGIH eight-hour time weighted average exposure limit is 20 ppm.

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**SECTION 11 - TOXICOLOGICAL INFORMATION****General**

No human or animal health effects data are known to exist for polypropylene carbonate. However, available toxicity information on polymers of molecular weight 1000 or greater suggests they have low toxicity. May contain 0.2 – 0.8% methylene chloride. Pure methylene chloride is a suspected human carcinogen. May contain up to 5% propylene carbonate. Propylene carbonate may cause serious eye damage.

**Information on toxicological effects:****Acute Toxicity:**

No data available

Inhalation: No data available

Dermal: No data available

**Skin corrosion/irritation:**

No data available

**Serious eye damage/eye irritation:**

Propylene carbonate is GHS classified as H319: “Causes serious eye irritation” in accordance with 29 CFR 1910.1200 Appendix A (OSHA HCS) Eye Irritation (Propylene carbonate: Category 2A).

**Respiratory or skin sensitization:**

No data available

**Germ cell mutagenicity:**

No data available

**Carcinogenicity:**

Methylene chloride is GHS classified as H351: "Suspected of causing cancer" in accordance with 29 CFR 1910.1200 Appendix A (OSHA HCS) Carcinogenicity (methylene chloride: Category 2)

**Reproductive toxicity:**

No data available

**Specific target organ toxicity – single exposure:**

No data available

**Specific target organ toxicity – repeated exposure:**

No data available

**Aspiration Hazard:**

No data available

**Acute Overexposure:**

No data is available on the health effects of chronic exposure to this product.

**Chronic Overexposure:**

No other effects besides those associated with acute exposure.

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**SECTION 12 - ECOLOGICAL INFORMATION****Toxicity:**

No data available

**Persistence and degradability:**

No data available

**Bio accumulative potential:**

No data available

**Mobility in soil:**

No data available

**Results of PBT and vPvB assessment:**

No data available

**Other adverse effects:**

No data available

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## **SECTION 13 - DISPOSAL CONSIDERATIONS**

### **Waste Treatment Methods:**

**Product:** Offer surplus and non-recyclable solutions to a licensed disposal company.

**Containment packaging:** Dispose of as unused product

### **Hazardous Waste Characteristic:**

None

### **Recommendation:**

Dispose of contaminated product, empty containers and materials used in cleaning up spills or leaks in a manner approved for this material. Consult appropriate federal, state and local regulatory agencies to ascertain proper disposal procedures. Discharge of processing effluent to the sewer may require a permit. DO NOT discharge effluent solutions to septic systems.

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## **SECTION 14 - TRANSPORTATION INFORMATION**

### **Ground Shipping Information (DOT)**

#### **Proper Shipping Name:**

None

#### **Non-Hazardous for Transport:**

This substance is considered to be non-hazardous for transport.

### **Air Shipping Information (ICAO/IATA)**

#### **Proper Shipping Name:**

None

#### **Non-Hazardous for Air Transport:**

This substance is considered to be non-hazardous for air transport.

### **International Maritime Organization (IMO) Additional Shipping Class (IMDG code)**

#### **IMDG Code:**

Not Applicable

#### **HTS Code:**

Not Applicable

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## **SECTION 15 - REGULATORY INFORMATION**

### **U.S. FEDERAL REGULATIONS**

**SARA LISTED:** No

**TSCA Inventory Item:** U.S. Toxic Substances Control Act (TSCA): All component(s) comprising these products are compliant with TSCA. These products have no special requirements under TSCA (e.g. consent orders, test rules, 12(b) requirements, etc.).

#### **SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### **SARA 313 Components**

**SARA Section 313 Toxic Chemical List:** Methylene chloride is listed.

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## **SECTION 16 - OTHER INFORMATION**

### **Classification System:**

#### **NFPA Ratings**

Health Hazard = 0

Fire Hazard = 0

Reactivity Hazard = 0

#### **HMIS Ratings**

Health Hazard = 0

Chronic Health Hazard =

Flammability = 0

Physical Hazard = 0

Refer to NFPA 652, Standard for Combustible Dusts, and NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.

It is believed that the herein contained information is accurate. It is provided for the purpose of hazard communication independent of any sale of the product, as part of our product safety program. There is no claim made regarding an implied warranty, express warranty, and fitness for a particular purpose or merchantability by the information herein contained or regarding the product. We make available data sheets for our products, which we urge you to obtain for the products you buy, process, distribute, or use. You should advise those who may come in contact with our products of the herein contained information.

User should consult his legal advisor or the appropriate government agency to establish applicability or effect of any regulation or law regarding the product. We do not undertake to provide advice on these matters.