



Ensinger, Inc.  
 365 Meadowlands Blvd.  
 Washington, PA 15301  
 Ph: 724-746-6050  
 Fx: 724-746-9209

Ensinger-Hyde  
 1 Main Street  
 Grenloch, NJ 08032  
 Ph: 856-227-0500  
 Fx: 856-232-1754

**MATERIAL SAFETY DATA SHEET**

**Radel® R-5500 and R-5000 Series**

**EMERGENCY TELEPHONE:** 724-746-6050 or 856-227-0500  
**Issue Date:** December 1, 1996  
**Revised Date:** July 8, 2004  
**TRADE NAME:** Radel R-5500, R-5100, R-5000  
**CHEMICAL NAME:** Polyphenylsulfone

**1. Composition / Information on Ingredients**

Component	CAS#	Range % by Wt.
Polyphenylsulfone	25608-64-4	
Titanium dioxide	13463-67-7	0-2
Carbon Black	1333-86-4	0-1

(See Section 7.0, "Exposure Controls / Personal Protections", for exposure guidelines)

**2. Hazards Identification**

*Emergency Overview:* Caution! Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose, and throat. It is important that processing equipment be free of material that decompose at temperatures below 700°F. Cross-contamination with such material may result in a violent release of fumes during processing.

*Potential Health Effects:*

*Eye Contact:* No significant health hazards identified. Particles or fibers may cause slight discomfort similar to getting dust in the eye.

*Skin Contact:* No significant health hazards identified. Particles or fibers may cause slight discomfort similar to rubbing sand against the skin.

*Inhalation:* No significant irritation expected other than possible mechanical irritation. See "Toxicological Information" (Section 11.0).

*Ingestion:* No significant health hazard identified.

*HMIS Code:* (Health: 1) (Flammability: 1) (Reactivity: 0)

*NFPA Code:* (Health: 1) (Flammability: 1) (Reactivity: 0)

**3. First Aid Measures**

*Eye:* Flush eyes with plenty of water. Get medical attention if irritation persists.

*Skin:* Wash exposed skin with soap and water. Get medical attention if irritation develops.

*Inhalation:* If adverse effects occur, remove to uncontaminated area. Get medical attention.

*Ingestion:* If a large amount is swallowed, get medical attention.

**4. Fire Fighting Measures**

*Flashpoint:* Non-flammable

*UEL:* Not determined.

*LEL:* Not determined.

*Auto-ignition Temperature:* 936°F (502°C)

*Flammability Classification:* Not Flammable.

*Extinguishing Media:* Agents approved for Class A hazards (e.g., foam, steam) or water fog.

*Unusual Fire and Explosion Hazards:* The normal temperature for processing this resin exceeds the decomposition and/or ignition temperature of some other polymeric resins, such as polyacetal, polyvinyl chloride (PVC), polypropylene, etc. If PVC or any other resin with a decomposition temperature below 700°F is molded or handled in your equipment, these material can rapidly decompose and/or react with Radel R resin at the temperatures used to process the Radel R resin.

Inadvertent contamination of Radel R resin with these material from the material handling system or other equipment can result in a rapid, possibly violent release of decomposition fumes, when the contaminated material is brought to processing temperature. To avoid, thoroughly clean molding and other processing equipment prior to changeover and prevent cross contamination of material in handling systems.

High dust concentrations have a potential for composition or explosion.

*Fire-Fighting Equipment:* Firefighters should wear full bunker gear, including a positive pressure self-contained breathing apparatus.

*Hazardous Combustions Products:* Incomplete burning can produce carbon monoxide and/or carbon dioxide, sulfur oxides, and other harmful products.

#### 5. Accidental Release Measures

Contain and remove by mechanical means. Vacuum or sweep out, avoid producing dust.

#### 6. Handling and Storage

*Handling:* Minimize dust generation and accumulation. Take appropriate measures to prevent static discharges, which may include thorough electrical interconnecting, grounding of equipment, and/or conveyance under inert gas.

*Storage:* No special requirements.

#### 7. Exposure Controls / Personal Protection

*Eye:* None required; however, use of eye protection is good industrial practice. Use dust goggles if high dust concentration is generated.

*Skin:* None required; however, use of protective gloves/clothing is good industrial practice.

*Inhalation:* Use with adequate ventilation: Do not breathe dust. If ventilation is inadequate, use NIOSH certified respirator that will protect against dust/mist. If heated and ventilation is inadequate, use a NIOSH certified respirator which will protect against organic vapor and dust/mist.

*Engineering Controls:* Control airborne concentrations below the exposure guidelines.

*Exposure Guidelines:*

Component	CAS #	Exposure Limits
Polyphenylsulfone	35608-64-4	No exposure limit established
Titanium dioxide	13463-67-7	OSHA PEL: 10mg/m <sup>3</sup> (total dust) OSHA Total Dust: 10mg/m <sup>3</sup> (1989) 15 mg/m <sup>3</sup> (1971) OSHA Respirable Dust: 5mg/m <sup>3</sup> (1989) 5 mg/m <sup>3</sup> (1971) ACGIH TLV-TWA: 10 mg/m <sup>3</sup> (total dust)
Carbon Black	1333-86-4	OSHA PEL: 3.5 mg/m <sup>3</sup> (1989) (1971) ACGIH TLV-TWA: 3.5 mg/m <sup>3</sup> ACGIH TLV-STEL: 7 mg/m <sup>3</sup>

#### 8. Chemical and Physical Properties

*Appearance and Odor:* Opaque or colored pellets; odorless

*pH:* Not determined

*Vapor Pressure:* Not determined

*Vapor Density:* Not determined

*Boiling Point:* Not determined

*Melting Point:* Not determined

*Solubility in Water:* Negligible, below 0.1%

*Specific Gravity (water = 1):* 1.29

*Softening Point:* 428°F (220°C)

## 9. Stability and Reactivity

*Stability:* Stable up to 800°F, but prolonged exposure at temperatures in the 750-800°F range can result in severe degradation.

*Conditions to Avoid:* Avoid generating dust.

*Material to Avoid:* The normal temperature for processing this resin exceeds the decomposition and/or ignition temperature of some other polymer resins, such as polyacetal, polyvinyl chloride (PVC), polypropylene, etc. If PVC or any other resin with a decomposition temperature below 700°F is molded or handled in your equipment, these material can rapidly decompose and/or react with Radel R resin at the temperature used to process the Radel R resin. Inadvertent contamination of Radel R resin with these materials from the material handling system or other equipment can result in a rapid, possibly violent release of decomposition fumes, when the contaminated material is brought to processing temperature. To avoid, thoroughly clean molding and other processing equipment prior to changeover and prevent cross contamination of material handling systems.

*Hazardous Decomposition:* Thermal decomposition products include carbon monoxide, and/or carbon dioxide, sulfur oxides, and hydrocarbons.

*Hazardous Polymerization:* Will not occur.

## 10. Toxicological Information

### *Acute Toxicity Data:*

*Eye Irritant:* Testing not conducted. See other toxicity data.

*Skin Irritant:* Testing not conducted. See other toxicity data.

*Dermal LD50:* Testing not conducted. See other toxicity data.

*Oral LD50:* Testing not conducted. See other toxicity data.

*Inhalation LC50:* Testing not conducted. See other toxicity data.

*Other Toxicity Data:* Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature, and/or professional experience.

Dense dust generated by the handling and/or processing of this material may be irritating to the eyes, skin, nose, and throat.

Titanium dioxide has been assigned exposure limits by ACGIH and OSHA based on nuisance dust and not toxicity.

This product may contain carbon black. Carbon black has been shown to cause lung tumors in rats at high exposure concentrations. These concentrations exceed the capacity of the lung to clear the carbon black particles, thus resulting in significant toxicity. The International Agency for Research on Cancer (IARC) has evaluated carbon black and found it to be possibly carcinogenic to humans (Group 2B).

## 11. Ecological Information

Ecological testing has not been conducted on this product.

## 12. Disposal Information

Burial at a permitted landfill is recommended. Disposal must be in accordance with applicable federal, state, and local regulations.

*RCRA:* This unused material, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however, it could be considered hazardous if it meets criteria for being toxic, corrosive, ignitable or reactive according to U.S. EPA definitions (40 CFR Subpart C). This material could also become a hazardous waste if it is mixed with or come into contact with a listed hazardous waste. If it is a hazardous waste, regulations in 40 CFR 262-266, 268, 270, and 279 may apply.

*This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe this information to be correct but cannot guarantee its accuracy or completeness. Health and safety precaution in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulation. No statement made in the data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.*