



THE DISCOVERY COMPANY

# SAFETY + HEALTH

## POLYSTYRENE

Union Carbide's polystyrene homopolymers, SAN copolymers, and rubber modified impact polystyrenes have a low order of toxicity. Their use in usual manufacturing processes will not ordinarily result in conditions defined as hazardous to health in the Occupational Safety and Health Act of 1970.

Polystyrene resins are classified as being slow burning, and when burned, the primary combustion products are carbon dioxide, carbon monoxide, and water. Rubber modification does not significantly change the combustion products. It has been determined that the combustion products of polystyrene are no more hazardous than those from wood, paper, or other natural products. The self-ignition temperature of polystyrene resins ranges from 800 to 900°F.

Based on laboratory studies in air at 500°F., a typical impact polystyrene is expected to generate 0.04 pound of fumes per ton of resin processed on typical sheet extrusion equipment. The emissions were primarily styrene monomer, but included a small amount of antioxidant, and they resulted almost entirely from volatilization rather than oxidative degradation.

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Product Manager

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Legal responsibility is assumed only for the fact that all studies reported here and all opinions are those of qualified experts.

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# MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form L58-OOS-4)

Attachment "F"

CHEMICAL NAME: UCAR® BISPHENOL A

SYNONYMS: 4,4'-Isopropylidenediphenol

CHEMICAL FAMILY: Aryls

FORMULA:  $(H_3C)_2C(C_6H_4OH)_2$

MOLECULAR WEIGHT: 228.28

TRADE NAME AND SYNONYMS: UCAR Bisphenol A

## I. PHYSICAL DATA

|                                         |                                             |                                        |                |
|-----------------------------------------|---------------------------------------------|----------------------------------------|----------------|
| BOILING POINT, 7.6 mm. Hg               | 230°C. (446.0°F.)                           | FREEZING POINT                         | 157°C.         |
| SPECIFIC GRAVITY (H <sub>2</sub> O = 1) | 1.195 at 25/25°C.                           | VAPOR PRESSURE AT 20°C.                | Not applicable |
| VAPOR DENSITY (air = 1)                 | Not applicable                              | SOLUBILITY IN WATER, % by wt. at 20°C. | <0.1           |
| PER CENT VOLATILES BY VOLUME            | 0                                           | EVAPORATION RATE (Butyl Acetate = 1)   | Not applicable |
| APPEARANCE AND ODOR                     | White flakes or prills; mild phenolic odor. |                                        |                |

## II. HAZARDOUS INGREDIENTS

| MATERIAL       | % | TLV (Units) |
|----------------|---|-------------|
| Not applicable |   |             |
|                |   |             |
|                |   |             |
|                |   |             |

## III. FIRE AND EXPLOSION HAZARD DATA

|                                      |                |                               |                      |       |                |
|--------------------------------------|----------------|-------------------------------|----------------------|-------|----------------|
| FLASH POINT<br>(test method)         | Not applicable | FLASH IGNITION<br>TEMPERATURE | 540°F. (ASTM D 1929) |       |                |
| FLAMMABLE LIMITS IN AIR, % by volume |                | LOWER                         | Not applicable       | UPPER | Not applicable |

|                                    |                                                                                                                                                                                                                                                                             |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXTINGUISHING MEDIA                | Use carbon dioxide or dry chemical for small fires.<br>Use ordinary foam for large fires.                                                                                                                                                                                   |
| SPECIAL FIRE FIGHTING PROCEDURES   | None, except avoid dust clouds.                                                                                                                                                                                                                                             |
| UNUSUAL FIRE AND EXPLOSION HAZARDS | Dust is explosive when particles are finer than 200 Tyler mesh (-74 microns).<br>Minimum Explosive Concentration, 0.020 ounces of solid/ft. <sup>3</sup> of air.<br>Minimum Ignition Temperature of Cloud, approximately 1,000°F.<br>Minimum Ignition Energy, 0.015 joules. |

## IV. EMERGENCY PHONE NUMBERS

Dr. C. U. Dernehl, 212/551-4785  
Dr. K. S. Lane, 212/551-4787  
C. P. Carpenter, Ph.D., 421/327-1020 } or 212/551-2345; 304/744-3487  
(nights, weekends, and holidays)

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While Union Carbide Corporation believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Union Carbide Corporation assumes legal responsibility. They are offered solely for your consideration, investigation, and verification.

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#### IV. HEALTH HAZARD DATA

|                                    |                                                                                                                                                         |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| THRESHOLD LIMIT VALUE              | Not yet established                                                                                                                                     |
| EFFECTS OF OVEREXPOSURE            | May cause skin irritation. Dust and solutions of Bisphenol A cause eye injury.                                                                          |
| EMERGENCY AND FIRST AID PROCEDURES | Flush skin contact with water. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes, and then call a physician. |

#### V. REACTIVITY DATA

|                                      |                |                                                                                     |      |
|--------------------------------------|----------------|-------------------------------------------------------------------------------------|------|
| STABILITY                            |                | CONDITIONS TO AVOID                                                                 | None |
| UNSTABLE                             | STABLE         |                                                                                     |      |
|                                      | ✓              |                                                                                     |      |
| INCOMPATIBILITY (materials to avoid) |                | None                                                                                |      |
| HAZARDOUS DECOMPOSITION PRODUCTS     |                | Thermal decomposition or burning may produce carbon monoxide and/or carbon dioxide. |      |
| HAZARDOUS POLYMERIZATION             |                | CONDITIONS TO AVOID                                                                 | None |
| May Occur                            | Will not Occur |                                                                                     |      |
|                                      | ✓              |                                                                                     |      |

#### VI. SPILL OR LEAK PROCEDURES

|                                                      |                                        |
|------------------------------------------------------|----------------------------------------|
| STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED | Shovel up and flush excess with water. |
| WASTE DISPOSAL METHOD                                | Bury in a landfill.                    |

#### VII. SPECIAL PROTECTION INFORMATION

|                                       |                      |                             |                  |
|---------------------------------------|----------------------|-----------------------------|------------------|
| RESPIRATORY PROTECTION (specify type) |                      | Dust respirator             |                  |
| VENTILATION                           | LOCAL EXHAUST        | Preferred                   | SPECIAL —        |
|                                       | MECHANICAL (general) | —                           | OTHER —          |
| PROTECTIVE GLOVES                     |                      | Rubber                      | EYE PROTECTION   |
| OTHER PROTECTIVE EQUIPMENT            |                      | Eye bath and safety shower. | Coverall goggles |

#### VIII. SPECIAL PRECAUTIONS

|                                       |                                                                                                                                                                                                                                                                       |  |  |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| PRECAUTIONARY LABELING                | UCAR® BISPHENOL A                                                                                                                                                                                                                                                     |  |  |
|                                       | WARNING! CAUSES EYE INJURY AND SKIN IRRITATION.<br>Do not get in eyes. Avoid prolonged or repeated contact with skin. In case of contact with eyes, immediately flush with plenty of water for at least 15 minutes; call a physician. Wash thoroughly after handling. |  |  |
| OTHER HANDLING AND STORAGE CONDITIONS | FOR INDUSTRY USE ONLY                                                                                                                                                                                                                                                 |  |  |
|                                       | —                                                                                                                                                                                                                                                                     |  |  |

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