

TELEPHONE: (732) 251-0800

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P. O. BOX 96 • SPOTSWOOD, N. J. 08884

SEND SHIPMENTS TO:
WEST GREYSTONE ROAD
OLD BRIDGE, N. J. 08857SUPERIOR® SMOKE FOR AIR FLOW TESTS

Superior® Smoke is colored white to gray depending on atmospheric conditions and contains no explosive materials. It has excellent buoyancy characteristics.

The smoke has a particle size of .0001 to .000001 centimeters in diameter; however, thirty seconds after it has been generated, the particle size statistical distribution does not conform to the normal bell-shaped curve. This phenomenon is caused by the smoke being a mist rather than solids suspended in air. Superior® Smoke is not a true smoke, but contains a large percentage of atmospheric moisture that provides high visual obscurity at low concentrations. The mist formation is seeded by zinc chloride and some other products of combustion such as free carbon. A minimum positive cloud would have a concentration of 10 mg/m³. The toxicity of the materials must be represented relative to the application and brief exposure time.

All smoke can be irritating to the breathing passages, and normally any irritation disappears once exposure has ceased. We recommend the use of self-contained breathing apparatus for exposure to dense concentrations or prolonged lighter concentrations. Of course, persons with respiratory ailments should not be exposed to any smoke, including ours.

We have been involved in the research, development and manufacture of smoke for fifty years, and would be pleased to be of further service.

SD/2A

MATERIAL SAFETY DATA SHEET**SECTION 1: PRODUCT INFORMATION**

| | |
|----------------------------|---|
| Product identifier | Superior [®] Smoke |
| Chemical Name | Screening Smoke |
| Product Use | Superior [®] Smoke for air flow studies |
| Manufacturer's information | SUPERIOR SIGNAL COMPANY, INC. PO Box 96 Spotswood, NJ 08884 USA Emergency Phone # (732) 251-0800 Fax (732) 251-9442 |

SECTION 2: PRODUCT INGREDIENTS (SMOKE)

Neither TLV nor PEL applicable because product is intended for use in short term tests.

| | TLV | PEL | 8-hour time weighted average |
|------------------------|----------------------|----------------------|------------------------------|
| Hydrated Zinc Chloride | 1 mg/m ³ | 1 mg/m ³ | |
| Water Condensate | - | - | |
| Carbon Monoxide | 55 mg/m ³ | 55 mg/m ³ | |

All other ingredients are present in negligible amounts and/or non-hazardous.

Concentrations of the various smoke components depend entirely on the size of solid(s) burned, volume of the space and ventilation of the space. They are not independently predictable or knowable.

Superior[®] Smoke products are available in various sizes that provide sufficient materials to create easily visible smoke for different sized areas.

| | | | |
|----------------------------|---|-----------------|---------------------|
| Superior [®] #1A | - | 4,000 cu. ft.: | 113 m ³ |
| Superior [®] #2B | - | 8,000 cu. ft.: | 227 m ³ |
| Superior [®] #3C | - | 40,000 cu. ft.: | 1133 m ³ |
| Superior [®] #W3C | - | 40,000 cu. ft.: | 1133 m ³ |

SECTION 3: PHYSICAL DATA (SMOKE)

| | |
|----------------------|--|
| Boiling Point: | Not Applicable |
| Vapor Pressure: | Not Applicable |
| Vapor Density: | Not Applicable |
| Solubility in Water: | Soluble |
| pH: | No Data |
| Appearance and Odor: | Gray to white with an odor of burning paper. |

SECTION 4: FIRE & EXPLOSION HAZARD DATA

| | |
|---|--|
| (SMOKE): Flash Point (method used): | None |
| Autoignition: | Not Applicable |
| Flammable limits in air: | Not Applicable |
| (SOLID PRODUCT): Extinguishing Media: | Use media suitable for surrounding fire. |
| (SMOKE/SOLID PRODUCT): Normal fire fighting protective equipment: | self-contained breathing apparatus and full protective clothing. |
| (SMOKE/SOLID PRODUCT): Unusual fire and explosion hazards: | None Known |

SECTION 5: REACTIVITY DATA (SOLID PRODUCT)

Stability: Stable under normal conditions
 Hazardous decomposition products: See section 2
 Hazardous polymerization: None Known

MATERIAL SAFETY DATA SHEET (continued)

SECTION 6: HEALTH HAZARD ASSESSMENT (SMOKE)

General: Superior® Smoke can be used without hazard if applied as directed. The main effects of the smoke are some minimal irritation of the throat, an awareness of an odd odor, and the appearance of smoke. These effects act as a warning and are desirable to prevent voluntary overexposure. Individuals should be urged not to accept exposures that cause minor irritation, but to leave the area and ventilate well to dissipate the smoke.

Ingestion: Not a significant route of exposure.

Eye Contact: Acute exposure is not likely to induce eye irritation.

Skin Absorption: Not a significant route of exposure.

Inhalation: Acute exposure can cause irritation of the respiratory tract and mucous membranes. In itself irritation is not usually regarded as a toxic effect unless it is sufficient to cause inflammation and then inflammation, not irritation, is the toxic effect.

Effects of Overexposure: Irritation of the respiratory passages; cough; nausea. Gross overexposure to dense smoke concentrations for periods of ten minutes or more could result in throat irritation and mucous membrane congestion requiring medical treatment. Coughs, chills, fever and pulmonary edema can result from overwhelming exposure. Increasingly severe overexposure is likely to result in increasingly severe irritation and inflammation to all mucous membranes contacted by the smoke with most severe effects usually appearing in the respiratory tract.

SECTION 7: EMERGENCY AND FIRST AID PROCEDURES

Remove victim to fresh air. If breathing is difficult, get medical attention.

SECTION 8: TOXICOLOGICAL PROPERTIES (SMOKE)

Carcinogen listed by: IARC (No) NTP (No) OSHA (No) OTHER (No)

SECTION 9: DISPOSAL METHOD

SMOKE: Ventilate area: Use local exhaust to keep exposure to a minimum. The duration of smoke would be short and the length of exposure could be reduced further by opening doors and windows for a few minutes, if and when the smoke appears.

(SOLID PRODUCT): Disposal Method: Dispose in chemical disposal area in a manner that complies with local, state and federal regulations.

The information herein is given in good faith, but no warranty, expressed or implied, is made.

SECTION 10: PREPARATION OF THE MSDS

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Date of Preparation: October 13, 2000

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SD/2A

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