SUPERIOR SIGNAL COMPANY, INC.

MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT IDENTIFICATION

Company Address:	P. O. Box 96, Spotswood, NJ 08884
Telephone Number:	(908) 251-0800
Chemical Family:	Screening Smoke
Trade Name:	Superior Smoke for testing sanitary sewers

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.

Superior Smoke products are available in various sizes that provide sufficient materials to create easily visible smoke at the concentration of 10 mg/m^3 zinc chloride. Superior #1A and #2B are recommended for testing house plumbing. Superior #3C and #W3C are recommended for testing sanitary sewer collection systems.

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): Special fire fighting protective equipment: self-contained breathing apparatus and full protective clothing.

SD/2
2/1/93

MATERIAL SAFETY DATA SHEET (continued)

(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

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. Irritation is a warning property of smoke materials; 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.

Emergency and First Aid Procedures: Remove victim to fresh air. If breathing is difficult, get medical attention.

SECTION 7: DISPOSAL METHOD

(SMOKE): Ventilate area: Use local exhaust to keep exposure to a minimum. The duration of smoke in the house or basement 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.

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3/5/90

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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. The toxicity of the materials must be represented relative to the application and, in this case, brief exposure time.

Notices sent out within 24 hours of smoke tests should advise the nature of the tests and request individuals to notify the administrators of the program concerning anticipated personal problems. While giving advance notices, discrete neighborhood inquiries can identify persons suffering from lung ailments such as emphysema, who should never be exposed to any smoke. The necessary arrangements to cooperate in any manner as not to jeopardize their condition can be completed at this time.

Authorities in the Occupational and Environmental Health Departments of several universities, including Dr. James Sterner, Professor of Occupational Health, College of Medicine, University of California, and Dr. Jack E. Peterson, Associate Professor of Civil Engineering of Marquette, Professor of Occupational and Environmental Medicine, University of Illinois, Ph.D. Industrial Health, Certified Industrial Hygienist, have extended opinions in support of Superior Smoke. Based on the reported data and theory, these people believe Superior type smoke to be the best available source of smoke.

Superior Smoke satisfies your smoke test requirements; economical, convenient, effective. With a T.O.F. of 2100, it is ten times more efficient than crude oil. Millions of feet of sewer line have been smoke tested, and less than 1% of the houses tested have had smoke enter them. Through this type of testing program, overloading of residential sewer lines causing backups of sewerage into homes and discharges of improperly treated sewage from overloaded treatment plants can be minimized.

SD/2
3/5/90

SUPERIOR SMOKE FOR TESTING SANITARY SEWERS

Smoke testing of sanitary sewer collection systems was initiated in 1961 at McPherson, Kansas. Excessive infiltration was a problem, and the most practical method developed was a visual test utilizing smoke that would meet the following criteria: relatively harmless; free from oily or colored stains; allow sewer personnel to operate without the danger of fire or explosion. Superior Smoke satisfies these requirements and has proven itself by over 20 years of successful field experience.

Smoke testing of sanitary sewer collection systems is endorsed by EPA in all regions, and included as an integral part of contracted inflow/infiltration studies. Zinc chloride type smoke, preferred by the Environmental Protection Agency, is manufactured by the Superior Signal Company, and has been the choice of sewer service contractors and municipalities for over 20 years.

Superior Smoke has the exclusive properties of leaving no visible residue and containing no explosive materials. Approximately 50% of the visible portion is atmospheric moisture. Small amounts of smoke mixed with large volumes of air, utilized in the Smoke Testing Technique for sanitary sewer collection systems, can enter dwellings through the same faults in house plumbing systems that provide egress of lethal and/or explosive sewer gases. The tests are performed under infinite volume conditions due to the characteristics of the sewer system. The concentration of smoke at a specific point would be influenced by the infinite volume of the system, size of fault, velocity of air flow, duration of test, and position of the blower in relation to the fault. Considering the amount of air/smoke mixture induced into the test segment, size of faults, duration of tests (minutes), infinite volume of the system due to roof vents, probably less than 1% of the smoke would be found at any one leak.