Applies to Item Nos. 14000, 14000B, 14030, 14040, 14050, 14070, 14020

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY *(As Used on Label and List)*
NOKORODE SOLDERING PASTE

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

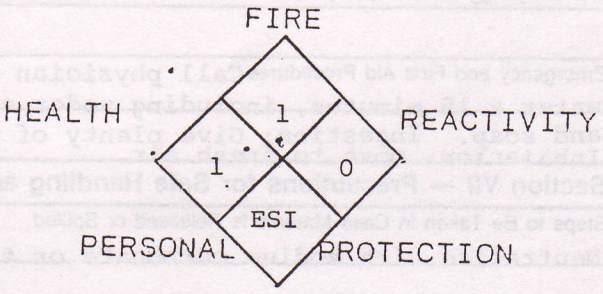
Manufacturer's Name: M. W. Dunton Company	Emergency Telephone Number: 1-401-821-1832
Address *(Number, Street, City, State, and ZIP Code)*: 3 Bridal Avenue, P.O. Box 232	Telephone Number for Information: Same
West Warwick, RI 02893	Date Prepared: 11/21/91
	Signature of Preparer *(optional)*

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
Zinc Chloride C.A.S. 7646-85-7	1Mg/M^3 (Fume)	1Mg/M^3 (Fume)	STEL-2Mg/M^3 (Fume)	Less than 10-25%
Ammonium Chloride C.A.S.12125-02-9	10Mg/M^3	10Mg/M^3 (Fume)	STEL-20Mg/M^3 (Fume)	Less than 10-25%
Petrolatum C.A.S. 8009-03-8	None	None		Less than 80%

This product is not known to be in any reports on carcinogens.

0= Insignificant Hazard
1= Slight Hazard
2= Moderate Hazard
3= High Hazard
4= Extreme Hazard
I= Avoid Inhalation
S= Avoid Skin Contact
E= Avoid Contact with Eyes



Section III — Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H_2O = 1)	1.06
Vapor Pressure (mm Hg.)	N/A	Melting Point	120-150°F
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water: Insoluble		Volatile organic compounds	0

Appearance and Odor: Tan/Gold to Black Paste, no appreciable odor

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used)	Flammable Limits	LEL	UEL
ASTM D-92 204 MIN C°	Non Flammable		

Extinguishing Media: Foam/Sand/CO_2

Special Fire Fighting Procedures

If large quantities are involved in a fire, firefighters should use self- contained breathing apparatus and protective clothing

Unusual Fire and Explosion Hazards

When heated the material may release zinc chloride and zinc oxide fumes

Section V — Reactivity Data

Stability			Conditions to Avoid
	Unstable		
	Stable	X	

Incompatibility (*Materials to Avoid*) Material may be incompatible with nylon and/or celcon plastics. Cyanides may release HCN Gas when mixed with zinc chloride.

Hazardous Decomposition or Byproducts

Hazardous Polymerization			Conditions to Avoid
	May Occur		
	Will Not Occur	X	

Section VI — Health Hazard Data SEE ATTACHED PAGE 3 and PAGE 4

Route(s) of Entry: Inhalation? - Skin? Ingestion?

Health Hazards (*Acute and Chronic*)

Carcinogenicity: N/A NTP? N/A IARC Monographs? N/A OSHA Regulated? N/A

Signs and Symptoms of Exposure Intense irritation of eyes

Medical Conditions Generally Aggravated by Exposure Dermatitis, respiratory diseases, conjunctivitis

Emergency and First Aid Procedures Call physician immediately in all cases: Eye contact: flush with water x 15 minutes, including under eyelids. Skin contact: Flush with water and soap. Ingestion: Give plenty of water or milk. Do not induce vomiting. Inhalation: move to fresh air

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled

Neutralize with sodium carbonate or tri-sodium phosphate

Waste Disposal Method

Flush or shovel to chemical waste disposal according to federal, state, and local regulations.

Precautions to Be Taken in Handling and Storing

Flux is a stable material in closed containers at room temperature under normal storage and handling conditions.

Other Precautions

Section VIII — Control Measures

Respiratory Protection (*Specify Type*)

Use fume or air supplied respirator when soldering in confined non-ventilated space

Ventilation		
	Local Exhaust during soldering at the flame so as to capture all gases and fumes	Special Train employee to keep head out of soldering fumes
	Mechanical (*General*)	Other See ANSI/ASC Z49.1 Section 5

Protective Gloves	Eye Protection
Rubber - For sensitive individuals	wear goggles or face shield if splashing during soldering is probable

Other Protective Clothing or Equipment

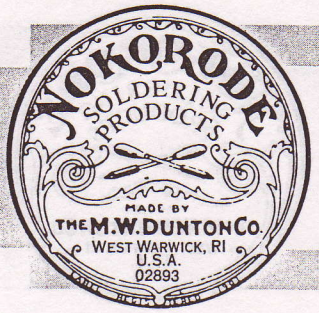
Head and body protection will help to prevent injury from splashing, sparks or flame

Work/Hygienic Practices

See Attached

* USGPO 1988-491-529/45775

THE M.W. DUNTON COMPANY
SPECIFICATION GRADE SOLDER AND FLUXES
3 BRIDAL AVE. • P.O. BOX 232
WEST WARWICK, RI 02893-0232
401-821-1832 CABLE NOKORODE
FAX 401-821-1914



DESIGNED AND ENGINEERED
TO YOUR SATISFACTION
FOR OVER 90 YEARS

Section VI - Health Hazard Data
NOKORODE SOLDERING PASTE

The following data would apply in the *hypothetical case of if the individual components making up this product were in full strength concentrations. However to be extra cautious feel free to assume the same data for the actual dilute concentrations found in this product.

ZINC CHLORIDE COMPONENT: PRINCIPAL HEALTH HAZARDS (Including Significant Routes, Effects, Symptoms of Overexposure, and Medical Conditions Aggravated by Exposure)

*Causes burns. Fumes, dust, or mist may cause injury to the respiratory tract. Severe exposure may cause lung damage.

Oral LD50 for zinc chloride: 350 mg/kg in rats

*The compound, in either solid or solution form, is corrosive to the eyes and skin. Toxic effects described in animals from short exposure include corrosion of mucosal surfaces, liver effects, and kidney effects. Toxic effects in animals occurring only with inhalation exposures, are lower respiratory irritation with pulmonary edema. Tests in bacterial or mammalian cell cultures demonstrate mutagenic activity. Tests in some animals indicate that the compound may have embryotoxic activity.

Human health effects of overexposure may initially include: eye irritation with discomfort, tearing, or blurring of vision; *skin irritation with discomfort or rash; or irritation of the upper respiratory passages. Higher exposures may lead to these effects: skin burns or ulceration; eye irritation with discomfort, tearing, or blurring of vision; temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; possibly modest initial symptoms, followed in hours by severe shortness of breath, requiring prompt medical attention; or fatality from gross overexposure by fume inhalation or by significant ingestion. There are inconclusive or unverified reports of human sensitization. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.

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NOKORODE SOLDERING PRODUCTS
MADE BY THE M.W. DUNTON CO. WEST WARWICK, RI U.S.A. 02893

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Exposure to zinc chloride fume can cause damage to the mucous membranes of the nasopharynx and respiratory tract. Exposed persons have experienced a pale gray cyanosis. *Zinc chloride is caustic and can cause ulceration of exposed surfaces of the skin. Inhalation may produce a severe pneumonitis resulting from irritation of the respiratory tract.

AMMONIUM CHLORIDE: Ammonium chloride is not considered a serious industrial hazard. Few of the reference books on industrial health or toxicology even mention it. However, Sax does list ammonium chloride, indicating it to be a mild irritant to the skin and respiratory passages, with a low-grade systemic toxicity by ingestion. The suggestion has even been made that large quantities of fume may be toxic by inhalation.

Large amounts of ammonium chloride fume are frequently evolved in galvanizing operations. A study of these processes indicated that control of fumes by mechanical dilution or local exhaust ventilation was usually provided. Concentrations of ammonium chloride were found to average below 5 mg/m3 meter of air, although peak concentrations were much higher.

*Remember, not only is this data for a concentration 3-7 times as strong as the product you receive, you also receive it mixed with petrolatum grease which limits contact by coating the skin and protecting it from all but the initial small amount making contact. Still, however, sensitive individuals can nevertheless receive skin burns.