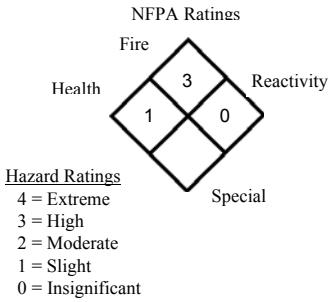

FORM NO. MSDS #57-B
DATE REVISED: 02/16/2004

Material Safety Data Sheet

(Essentially Similar to U.S. Department of Labor Suggested Form For Hazard Communication Compliance)

I. Product Identification

Product Type - ALL-STATE BINDING FLUX

Manufacturer - THE ESAB GROUP, INC.
Website: www.esabna.com

Address - 801 Wilson Avenue
Hanover, PA 17331

Telephone No. - 1-717-637-8911
1-800-933-7070

Emergency No. - 1-717-637-8911
(CHEMTREC) 1-800-424-9300

APPROXIMATE COMPOSITION (Wt. %)

All-State Product Trade Name	Naphtha (petroleum) hydrotreated light; low boiling point hydrogen treated naphtha	NJTSR No 56705700001-6415P, Acrylic Polymer Based on n-Butyl Methacrylate
All-State 13 Binding Flux ❶	40-70	30-60

❶ See Note in Section VI

THE ESAB GROUP requests the users of these products to study this Material Safety Data Sheet (MSDS) and the product labels and become fully aware of the product hazards and safety information. To promote the safe use of these products a user should (1) notify and train its employees, agents and contractors concerning the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for these products, and (3) request that such customers notify and train their employees and customers, for these products, of the same product hazards and safety information.

II. Hazardous Ingredients

IMPORTANT: This section covers the materials from which this product is manufactured. The fumes and gases produced during normal use of these products are covered in Section V. The term **HAZARDOUS** should be interpreted as a term required and defined by Laws, Statutes or Regulations, and does not necessarily imply the existence of any hazard when the products are used as directed by **THE ESAB GROUP**.

Material	(CAS No.)	SARA	ACGIH TLV (1999) TWA (mg/m^3)	OSHA - PEL (1993) TWA (mg/m^3)	OSHA - PEL (1993) STEL (mg/m^3)
Naphtha (petroleum) hydrotreated light	(64742-89-8)		--	--	--
NJTSR No 56705700001-6415P, Acrylic polymer based on n-Butyl methacrylate	(97-88-1)		--	--	--
RECOMMENDED EXPOSURE LIMITS FOR THIS PRODUCT			5	5	10

NOTE: In the ingredients table, an asterisk (*) after the CAS number indicates a toxic chemical subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (SARA) and 40 CFR Part 372.

NOTE In the ingredients table, a "C" following the concentration value indicates a Ceiling Limit – "The concentration that shall not be exceeded during any part of the working exposure."

III. Physical Data

Chemical Type:	Mixture
Physical State:	GAS ( ) LIQUID (X) SOLID ( )
Appearance:	Colorless viscous liquid
Odor:	Colorless viscous liquid with odor mildly like paraffins
Flash Point:	<10°C (DIN 51751) (naphtha).
	<50°F (Pensky Martens Closed Cup) (naphtha)
Viscosity (dynamic):	2,800-5,400 mPa's at 20°C
Viscosity (kinematic):	808 mm^2/s at 40 °C
Boiling Range :	110 to 125°C at 1,013 hPa(=mbar) (DIN 51751) (naphtha)
Vapor Pressure (@ about 20°C):	35 hPa (=mbar) (DIN 51751) (naphtha).
Solubility in Water:	<0.1 g/l at 20°C (naphtha)
Solubility (qualitative):	Readily soluble in esters, ketones and chlorinated hydrocarbons.
Melting Point:	Below 0°C
Specific Gravity (H_2O = 1):	0.84 g/cm^3 at 20°C
Vapor Density (Air = 1):	Above 1
Percent Volatiles by Volume:	N/A
Evaporation Rate (butyl acetate = 1):	Not available

IV. Fire & Explosion Hazard

Flammable/Explosive: NO ( ) YES (X)

Flash Point (Method Used): Below 10°C (DIN 51755)
Flammability Limits in Air (% by Volume) LEL: 0.7 UEL: 7.5 (Solvent)

Ignition Temperature: >200°C (DIN 51794)

Flammable Properties: Flammable liquid. Vapors can travel to source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flash point.

Extinguishing Media: Foam, dry chemical, carbon dioxide (Class B extinguishers for Class I B liquid fires).

Special Fire Fighting Procedures: Same as in case of gasoline fires. Do not enter confined fire space without full bunker gear. (Helmet with face shield, bunker coats, gloves & rubber boots). Use NIOSH approved positive pressure self-contained breathing apparatus. Containers can build up pressure if exposed to heat. Cool with water spray.

Unusual Fire and Explosion Hazards: Isolate from oxidizers, heat, sparks, electrical equipment and open flames. Closed containers may explode if exposed to extreme heat.

V. Reactivity Data

Stability: Stable (X) Unstable ( ) Hazardous polymerization will not occur.

Conditions to Avoid: High temperature and sources of ignition

Incompatibility (Materials to Avoid): Oxidizing agents.

Hazardous Decomposition Products: The dried residue from this product if heated will decompose and emit flammable vapors, which irritate the eyes and the respiratory system. The vapors consist primarily of n-butyl methacrylate (97-88-1).

When soldering, brazing, braze welding and welding, the fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the material being worked, the process, procedures and consumables used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the material being worked (such as paint, plating or galvanizing), the number of welding operations and the volume of the work area, the quality and amount of ventilation, the position of the worker's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning or painting activities). When the materials are consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section II. Decomposition products of normal operation include those originating from the volatilization, reaction or oxidation of the ingredients, plus those from the material being worked and the coatings etc. noted above.

Reasonably Expected Decomposition Products from normal use of this products to solder, braze, braze weld and weld, include a complex of the oxides of the materials listed in Section II, as well as carbon monoxide, carbon dioxide, ozone and nitrogen oxides (refer to “Characterization of Arc Welding Fume” available from the American Welding Society). THE GENERAL LIMIT FOR WELDING FUMES is 5 mg/m^3. The only way to determine the true identity of the decomposition products is by sampling and analysis. The composition and quantity of the fumes and gases to which a worker may be overexposed can be determined from a sample obtained from inside the welder’s helmet, if worn, or in the worker’s breathing zone. See ANSI/AWS F1.5 “Methods for Sampling and Analyzing Gases from Welding and Allied Processes” and ANSI/AWS F1.1 “Method for Sampling Airborne Particles Generated by Welding and Allied Processes”, available from the American Welding Society.

VI. Physical and Health Hazard Data

Electric arc working may create one or more of the following health or physical hazards. Fumes and gases can be dangerous to your health. Electric shock can kill you. Arc rays can injure eyes and burn skin. Noise can damage hearing. A detailed description of the Health and Physical Hazards and their consequences may be found in ESAB’s publications 17982 “Standard for Fire Prevention During Welding, Cutting and Other Hot Work.” You may obtain copies from your local supplier or by writing to the address in Section I.

Route of overexposure: The routes of exposure to this product are swallowing, skin contact, and inhalation. When soldering, brazing, braze welding and welding, the primary route of entry of the decomposition products is by inhalation. Skin contact, eye contact, and ingestion are possible. When these products are used as recommended by **THE ESAB GROUP**, and ventilation maintains exposure to the decomposition products below the limits recommended in this section, overexposure is unlikely.

Effects of acute (short-term) overexposure: Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty in breathing, frequent coughing, or chest pain.

Acute overexposure to this product by:

Inhalation: of vapors may cause nasal and respiratory irritation, and may cause central nervous system effects including dizziness, weakness, fatigue, nausea, headache and possible unconsciousness, and even death.

Eye Contact: (Direct or as vapor) May cause irritations.

Skin Contact: May cause irritations and an allergic reaction.

Ingestion: May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

TOXICOLOGICAL INFORMATION: This product has not been tested for its toxicological properties. The solvent, naphtha, in tests has performed as follows:

TOXICITY DATA:

LD50 (oral, rat)	Above 2000 mg/kg
LD50 (dermal, rabbit)	Above 2000 mg/kg
LC50 (inhalation, rat, 4 H exposure)	Above 5 mg/L

This data suggests that naphtha, the solvent, is a relatively low acute toxicity chemical.

Pre-existing Medical Conditions Aggravated by Overexposure: Individuals with allergies or impaired respiratory function may have symptoms worsened by exposure to soldering, brazing, braze welding and welding fumes. However, such reaction cannot be predicted due to the variation in composition and quantity of the decomposition products. Exposure to this product may cause aggravation to pre-existing skin, lung, and eye disorders.

Effects of chronic (long-term) overexposure: to air contaminants may lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest x-rays. The severity of the change is proportional to the length of the exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on x-rays may be caused by non-work factors such as smoking, etc. Long term exposure to welding and allied processes gases, dusts and fumes may contribute to pulmonary irritation or pneumoconiosis. Chronic exposure to this product may cause a skin allergy. If the allergy develops, very low future exposure can cause itching and a skin rash.

Exposure limits for the ingredients are listed in Section II. The ACGIH and the 1989 OSHA TWA for welding fume is 5 mg/m^3. At times the limit for a particular hazardous chemical is reached before the limit for welding fumes. TLV-TWA's should be used as a guide in the control of health hazards and not as firm lines between safe and excessive concentrations. As noted in Section V, the fume from welding and allied processes is a mixture of many components. Therefore, a statutory computation of the equivalent exposure is required. The equivalent exposure value for the welding and brazing fume mixture shall always be less than one. When these products are used as recommended by THE ESAB GROUP, and the preventive measures taught in this MSDS are followed, overexposure to hazardous substances will not occur.

Emergency First Aid Measures: In case of emergency call for medical aid. Employ first aid technique recommended by the Red Cross. If BREATHING IS DIFFICULT give oxygen and call for a physician. FOR ELECTRIC SHOCK disconnect and turn off the power. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician. FOR ARC BURN, apply cold, clean compresses and call a physician.

Eye Contact: With eyelids retracted, flush eyes with plenty of water for at least 15 minutes to remove all residue. Get medical attention immediately.

Skin Contact: flush skin with plenty of soap and water ; remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Consult doctor.

Inhalation: Remove to fresh air. Obtain medical assistance immediately; advise physicians of ingredients listed in Section II. If breathing has stopped, perform artificial respiration. Administer oxygen if available.

Ingestion: Aspiration can take place directly or subsequently to swallowing. This may result in chemical pneumonia. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Get immediate medical attention. call a physician or poison control center immediately. (Never give anything by mouth to an unconscious person.)

Carcinogenic Assessment (NTP Annual Report, IARC Monographs, Other): This product does not contain chemicals found in the cited references.

➊ **WARNING:** This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code §25249.5 et seq.)

VII. Precautions for Safe Handling and

Use/Applicable Control Measures

Read and understand the manufacturer's instructions and the precautionary label on this product. See American National Standard Z-49.1, "Safety in Welding and Cutting," published by the American Welding Society, P. O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following:

Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding or brazing in confined spaces or where local exhaust or ventilation does not keep exposure below TLVs. Where respiratory protection is necessary, NIOSH approved respiratory protection should be used. The selection of the appropriate respiratory protection (dust respirator, etc.) should be based on the actual or potential airborne contaminants and their concentrations present. However, at least a NIOSH approved type TC-21-C dust mask is recommended.

Eye Protection: Chemical tight safety goggles. Do NOT wear contact lenses. Readily available eye baths are recommended in areas where operations may produce fumes and dusts.

Ventilation: Adequate to keep vapor concentration below TLV. Use enough ventilation, local exhaust at the source, or both, to keep the exposure within legal limits. In the worker's breathing zone and the general area, the fumes and gases must be kept below the TLVs and the *equivalent exposure* must compute to less than one. Train the operator to keep his head out the fumes

Protective Clothing and Equipment: Whenever this material is handled, use an apron and rubber boots, and chemical resistant gloves. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. When doing hot work, wear head, hand and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Hygienic Work Practices: Avoid contact to eyes, skin, and mucous membranes. Avoid inhalation of vapors. Wash thoroughly after handling and use. Do not smoke, eat, drink, chew gum or tobacco, or apply cosmetics within the working area Do not carry or store tobacco products, gum, food, drinks or cosmetics into the working area. Otherwise follow the standards of good industrial hygiene practices.

Steps to be taken if material is spilled or released: Remove sources of ignition and ventilate the area. Prevent product from getting into water or sewerage systems. Absorb with absorbent material (i.e. sawdust, sand, diatomacious earth). Collect in separate containers. Keep containers closed and dispose of as recommended. Use personal protective equipment. Avoid skin contact, and breathing of vapors or mist.

Waste Disposal Method: Incineration according to federal, state and local regulations in an approved incineration unit. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.

Precautions to be Taken in Handling and Storage: Avoid contact to the eyes, skin, and mucous membranes. Store in cool and well ventilated area, away from sources of ignition. Do not store together with highly flammable substances. Do not store together with oxidizing substances.

Handling: Keep away from heat, sparks, flames, arc welding and other hot work.

The opinions expressed in this MSDS are those of qualified experts within **THE ESAB GROUP**. We believe that the information contained herein is current as of the date of this MSDS. Since the use of this information and these opinions and the conditions of use of these products are not within the control of **THE ESAB GROUP**, it is the user's obligation to determine the conditions of safe use of these products.