### MATERIAL SAFETY DATA SHEET

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

I. PRODUCT IDENTIFICATION					
PRODUCT TYPE ALL-STATE ELECTRODE FOR WELDING HIGH ALLOY, CARBON AND STAINLESS STEELS					
MANUFACTURER	THE ESAB GROUP, INC.	TELEPHONE NO.:	1-717-637-8911 1-800-933-7070		
ADDRESS	801 WILSON AVENUE HANOVER, PA 17331	EMERGENCY NO.: (CHEMTREC)	1-800-424-9300		

NOMINAL CHEMICAL COMPOSITION (%)

ALL-STATE PRODUCT TRADE NAMES	NO. 252 ❸	SMOOTHCOTE 256 ❸	GLIDEARC	252 MIG 252-T <b>②</b>	NO. 275 BLUE ❸	NO. 275 ❸	NO.275 SUPER ❸	NO. 275- T <b>ⓒ</b>	STUD PLUS �
BENTONITE	Х		***			Х	Х		Х
CALCIUM CARBONATE	Х	Х	Х		Χ	Х	Х		Х
CALCIUM FLUORIDE	Х	Х	<b>X</b>		X	Х	Х		Х
CHROMIUM	20-23	13-23	10-22	25-28	25-35	20-23	15-25	28-32	21-25
CHROMIUM COMPOUNDS	<0.5	1-12	2-10			<1			
IRON	Х	Х	Х	Х	Х	Χ	X	Х	Х
LITHIUM ALUMINUM SILICATE		Х	Х		X				
MANGANESE	2-3	1-12	2-10	1-2.5	1-5	3-4	3-4	1-2.5	2-5
MOLYBDENUM		Х	X						
NICKEL	14-16	5-15	3-16	20-22.5	2-12	5-7	5-7	8-10.5	5-10
POTASSIUM FELDSPAR	Х	Х	X		Х	X	X		X
POTASSIUM SILICATE		Х	X		X				
SILICATE BINDER	Х					Х	Х		X
SILICON	Х	X	Х	Х		Х	Х	Х	X
SODIUM SILICATE		<b>X</b>	X		Х				
TITANIUM DIOXIDE	Х	Х	Х		Х	Х	Х		Х

NOTE: X indicates material is present

• See Note 3 in Section VI

THE ESAB GROUP requests the users of these products to study this Material Safety Data Sheet (MSDS) and become more aware of the product hazards and safety information. To promote the safe use of these products a user should (1) notify its employees, agents and contractors of 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 such customers to notify their employees and customers, for these products, of the same product hazards and safety information.

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 the 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.

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# 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	0SHA - PEL	
1	(		TWA	TWA	STEL
			(mg/m³)	(mg/m <sup>3</sup> )	(mg/m <sup>3</sup> )
BENTONITE	1302-78-9		10 (NUISANCE	5 (RESPIRABLE DUST)	
	,		PARTICULATE)		
CALCIUM	1317-65-3		10 (DUST)	5 (RESPIRABLE)	
CARBONATE					
CALCIUM FLUORIDE	7789-75-5	J.	2.5 (AS F)	2.5 (AS F)	
CHROMIUM AND	7440-47-3	*	0.5 (METAL)	0.5 (METAL)	
(CHROMIUM COMPOUNDS)			0.05 (CrVI)	C 0.1 (AS CHROMATE)	
IRON	7439-89-6		5 (OXIDE FUME)	10 (TOTAL	
	nê			PARTICULATE)	
LITHIUM ALUMINUM	12068-40-5		2 (as Al)	2 (as Al)	
SILICATE			19		
MANGANESE	7439-96-5	*	0.2	1 (FUME)	3
MOLYBDENUM	7439-98-7		5 (SOLUBLE)	5 (SOLUBLE)	
NICKEL	7440-02-0	*	0.1 (SOLUBLE)	0.1 (SOLUBLE)	
POTASSIUM	68476-25-5		10 (NUISANCE	5 (RESPIRABLE	
FELDSPAR			PARTICULATE)	FRACTION)	
POTASSIUM	1312-76-1		10 (TOTAL DUST)	5 (RESPIRABLE)	
SILICATE		7.			
SILICATE BINDER	6834-92-0		10	5 (RESPIRABLE)	
	10006-28-7		10	5 (RESPIRABLE)	
SILICON	7440-21-3		10 (DUST)	5 (RESPIRABLE)	
SODIUM SILICATE	1344-09-8		10 (TOTAL DUST)	5 (RESPIRABLE)	
TITANIUM DIOXIDE	13462-63-7		10 (DUST)	5 (RESPIRABLE)	4 4 - 41

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.

In the table above "C" indicates "Ceiling Limit".

III. PHYSICAL DA	<b>₹</b> I Æ	١
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As shipped, these products are nonflammable,	nonexplosive	. nonreactive.	, and nonhazardous
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PHYSICAL STATE:

GAS (\*)

LIQUID ()

SOLID (X)

ODOR AND APPEARANCE Flux coated or bare solid steel wire, odorless

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#### IV. FIRE & EXPLOSION HAZARD

FLAMMABLE/EXPLOSIVE:

NO (X)

YES ()

**UNDER WHAT CONDITIONS?** 

ONLY THE PACKAGING FOR THIS PRODUCT WILL BURN.

EXTINGUISHING MEDIA: This product will not burn. However, welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation. See ANSI Z49.1 "Safety in Welding and Cutting" and "Safe Practices" Code: SP, published by the American Welding Society, P. O. Box 351040, Miami, FL 33135, and NFPA 512 "Cutting and Welding Processes", published by the National Fire Protection Association, Butterymarch Park, Quincy, MA 02269 for additional fire prevention and protection information.

### V. REACTIVITY DATA

STABILITY:

STABLE (X)

UNSTABLE ()

POLYMERIZATION WILL NOT OCCUR.

**INCOMPATIBLE PRODUCTS:** 

NONE CURRENTLY KNOWN.

HAZARDOUS DECOMPOSITION PRODUCTS: Welding 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 these products include a complex of the oxides and fluorides of the materials listed in Section II. as well as carbon monoxide, carbon dioxide and nitrogen oxides (refer to "Characterization of Arc Welding Fume" available from the American Welding Society). THE TLV FUME LIMIT FOR MANGANESE (0.2 mg/m³) OR FOR CR VI (0.05 mg/m³) MAY BE REACHED BEFORE THE GENERAL LIMIT FOR WELDING FUMES OF 5 mg/m³ IS REACHED. MONITOR FUMES FOR MANGANESE AND CR VI LEVELS. 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 workers breathing zone. See 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.

ROUTE OF OVEREXPOSURE: The primary route of entry of the decomposition products is by inhalation. Skin contact, eye contact, and ingestion are possible. Absorption by skin contact is unlikely. 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 to the gases, fumes and dusts may include irritation of the eyes, lungs, nose and throat. 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. The presence of chromium/chromate in fume can cause irritation of nasal membranes and skin. The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever, and allergic reaction.

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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.. Nickel and chromium (in some products) are considered carcinogenic. Long term overexposure to nickel fumes may also cause pulmonary fibrosis and edema. Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languer, sleepiness, muscular weakness, emotional disturbances and spastic gait.

PRE-EXISTING MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: Individuals with allergies or impaired respiratory function may have symptoms worsened by exposure to welding fumes. However, such reaction cannot be predicted due to the variation in composition and quantity of the decomposition products.

EXPOSURE LIMITS: for the ingredients are listed in Section II. The 1989 OSHA TWA for welding fume is 5 mg/m<sup>3</sup>. 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. 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.

CARCINOGENIC ASSESSMENT (NTP ANNUAL REPORT, IARC MONOGRAPHS, OTHER ): Nickel and Chromium must be considered possible carcinogens under OSHA (29 CFR 1910.1200). IARC has indicated Nickel, Chromium, and certain of their compounds are probably carcinogenic for humans, but the compounds cannot be specified precisely. Their conclusions were drawn from operations different from welding. Regardless, exposure level must be kept below those levels specified in Section II.

**WARNING:** This product contains or produces a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code §25249.5 et seq.)

#### VII. PRECAUTIONS FOR SAFE HANDLING AND USE

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 CFR 1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following:

<u>VENTILATION:</u> Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out the fumes.

<u>RESPIRATORY PROTECTION:</u> Use respirable fume respirator or air supplied respirator when welding in confined spaces or where local exhaust or ventilation does not keep exposure below TLV.

<u>EYE PROTECTION:</u> Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

PROTECTIVE CLOTHING: 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.

## PROCEDURE FOR CLEANUP OF SPILLS OR LEAKS: NOT APPLICABLE

<u>WASTE DISPOSAL METHOD:</u> Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State, and Local regulations.