

# *BCS*

## **Sodium Silicate for Core Making**

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### ***Description:***

Sodium Silicate is a liquid material that can be mixed with sand to form a core binder. The cores will harden when gassed with CO<sub>2</sub> (Carbon Dioxide). This material is also commonly called Water Glass.

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### ***What It Does:***

Cores are used to create hollow cavities in the interior of castings. In the sand cast process, sand is mixed with a binder to form a core that is strong enough to withstand the pressure of the molten metal. The core must be porous to allow gas to escape from the casting. It should also be easily removed from the finished casting. Sodium Silicate is used as the binder that holds the sand together in cores.

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### ***How To Use It:***

Mix a fine grained sand (try about a 120 mesh to begin with) with 3% to 4% by weight of the sodium silicate. Mixing can be accomplished in a small container by hand for small jobs. Larger batches can be mixed in a muller.

Pack the treated sand into a core mold that forms the desired shape. Insert any wires, rods or other support items as required.

Apply CO<sub>2</sub> gas from a low pressure source such as a beverage gas cylinder. The gas can be applied using a hose and any convenient nozzle. This could be just the end of the tube, or a diffuser such as a standard kitchen funnel. The object is to push the gas thru the core from one end to the other, and activate the sodium silicate to bind the sand.

The cores will be ready for use immediately after curing.

# COASTAL STATES CHEMICAL CO.

## MATERIAL SAFETY DATA SHEET

APPROVED BY U.S. DEPARTMENT OF LABOR  
"ESSENTIALLY SIMILAR TO FORM OSHA-20"

### SECTION I

MANUFACTURER'S NAME <b>COASTAL STATES CHEMICAL COMPANY</b>		EMERGENCY TELEPHONE NO. <b>707-437-3351</b>
ADDRESS (NUMBER, STREET, CITY, STATE AND ZIP CODE) <b>6065 LAMBIE ROAD, SUISUN CITY, CALIF. 94585</b>		
CHEMICAL NAME AND SYNONYMS <b>SODIUM SALT of SILICIC ACID</b>		TRADE NAME AND SYNONYMS <b>PYROSIL HCN</b>
CHEMICAL FAMILY <b>SODIUM SILICATE SOLUTION</b>	FORMULA	<b>SODIUM SILICATE SOLUTION SUGAR</b>

### SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES AND SOLVENTS	%	TLV (UNITS)	ALLOYS AND METAL COATINGS	%	TLV (UNITS)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS OR GASES				%	TLV (UNITS)

### SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H <sub>2</sub> O = 1)	1.3 - 1.4
VAPOR PRESSURE (mm Hg.)	NA	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR = 1)	NA	EVAPORATION RATE ( _____ = 1)	NA
SOLUBILITY IN WATER	COMPLETE	pH	11 - 13
APPEARANCE AND ODOR <b>VISCOUS LIQUID, COLORLESS TO HAZY. ODORLESS.</b>			

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED)	NA	FLAMMABLE LIMITS	LeI	UeI
EXTINGUISHING MEDIA	NA	NA		
SPECIAL FIRE FIGHTING PROCEDURES	NA			
UNUSUAL FIRE AND EXPLOSION HAZARDS	NA			

(continued on reverse side)

**SECTION V - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE
EFFECTS OF OVEREXPOSURE EYE CONTACT CAUSES IRRITATION. SKIN CONTACT CAUSES IRRITATION, BREATHING SPRAYED MIST CAN CAUSE RESPIRATORY TRACT DAMAGE.
EMERGENCY AND FIRST AID PROCEDURES EYES: IN CASE OF CONTACT IMMEDIATELY FLUSH WITH WATER FOR 15 MINUTES. SEE PHYSICIAN. SKIN: WASH OFF WITH LOTS OF WATER. CLOTHING: WASH CONTAMINATED CLOTHES BEFORE RE USE.

**SECTION VI - REACTIVITY DATA**

STABILITY	UNSTABLE		CONDITIONS TO AVOID DUE TO HIGH ALKALINITY, FLAMMABLE HYDROGEN GAS MAY BE PRODUCED ON PROLONGED CONTACT WITH METALS SUCH AS ALUMINUM, TIN AND LEAD.
	STABLE	XXX	
INCOMPATIBILITY (MATERIALS TO AVOID) AVOID CONTACT WITH ACIDS AS GELLING WILL OCCUR.			
HAZARDOUS DECOMPOSITION PRODUCTS HYDROGEN			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XXX	

**SECTION VII - SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED SMALL QUANTITIES, LESS THEN 100 GALS. MOP UP AND FLUSH TO SEWER. LARGE QUANTITIES, ISOLATE BY DIKING. COLLECT AND STORE. DISPERSE REMAINS WITH WATER AND FLUSH TO SEWER.
WASTE DISPOSAL METHOD SMALL QUANTITIES, LESS THEN 100 GALS. FLUSH TO SEWER WITH PLENTY OF WATER. LARGE QUANTITIES, NEUTRALIZE WITH DILUTE ACID AND COLLECT FOR LANDFILL DUMP. FLUSH NEUTRAL WATER TO SEWER WITH PLENTY OF WATER.

**SECTION VIII - SPECIAL PROTECTION INFORMATION**

RESPIRATORY PROTECTION (SPECIFY TYPE) NIOSH MIST RESPIRATOR WHERE SPRAY MIST OCCURS.	
VENTILATION	SPECIAL
LOCAL EXHAUST	
MECHANICAL (GENERAL)	OTHER
PROTECTIVE GLOVES RUBBER, WHERE CONTACT IS LIKELY.	EYE PROTECTION CHEMICAL GOGGLES OR FACE SHIELD.
OTHER PROTECTIVE EQUIPMENT SAFETY SHOWER AND EYEWASH FOUNTAIN SHOULD BE READILY ACCESSABLE.	

**SECTION IX - SPECIAL PRECAUTIONS**

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING AVOID CONTACT WITH EYES, SKIN AND CLOTHING. DO NOT BREATHE SPRAY MIST.
OTHER PRECAUTIONS

THE INFORMATION CONTAINED HEREIN IS FURNISHED WITHOUT WARRANTY OF ANY KIND. EMPLOYERS SHOULD USE THIS INFORMATION ONLY AS A SUPPLEMENT TO OTHER INFORMATION GATHERED BY THEM AND MUST MAKE INDEPENDENT DETERMINATIONS OF SUITABILITY AND COMPLETENESS OF INFORMATION FROM ALL SOURCES TO ASSURE PROPER USE OF THESE MATERIALS AND THE SAFETY AND HEALTH OF EMPLOYEES.

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