

NORAM

SULFURIC ACID

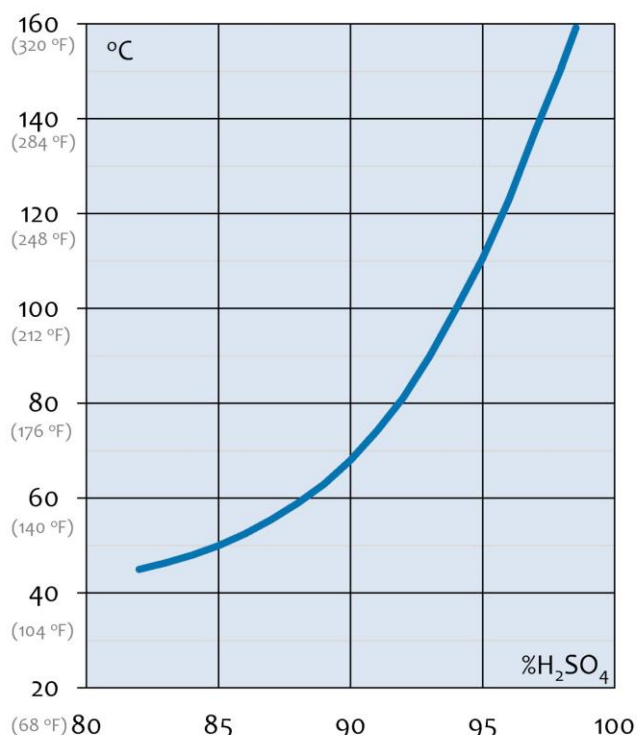
Products and Services

NORAM SX[®]



NORAM SX® is the trademark for the austenitic stainless steel, UNS S32615, which was developed by Sandvik in Sweden specifically for the use in hot concentrated sulfuric acid. SX steel is considered the benchmark in sulfuric acid service with over 25 years of unparalleled performance offering numerous advantages over other materials of construction.

NORAM SX® Isocorrosion curve 0.1 mm/year for



The SX material was developed more than 25 years ago and the original high silicon alloy composition still sets the standard as the leading, most proven and versatile material of construction in hot sulfuric acid service.

The corrosion rate for NORAM SX® is practically zero in the typical operating range of the acid plant circuits. Corrosion properties are equally good for the base material and the welds also in dynamic conditions.

NORAM SX® is readily workable and matching welding consumables are available for GTAW, GMAW and SMAW processes.

NORAM SX® is available from stock in a large variety of forms, such as plate, tube, pipes, fittings, wire, bar and welding consumables.

Approvals:

- ASME II, Part D
- ASME VIII, Div 1
- PMA-EN

NORAM SX® / SANDVIK SX COMPOSITION

Cr	Ni	Si	Mn	Cu	Mo
16.5-19.5%	19.0-22.0%	4.8-6.0%	2.0%	1.5-2.5%	0.3-1.5%

The excellent mechanical and corrosion properties, and the available forms of material, allows for a rational and cost effective fabrication of equipment. The extensive experience of NORAM as a major provider of proprietary acid plant technology assures a safe and reliable design of SX acid plant equipment.

NORAM SX® equipment includes:

- Acid Piping, Fittings, Strainers, Vortex breakers, Thimbles, Dip pipes, etc.
- Acid Coolers - without need for anodic protection
- Acid Towers - all alloy no brick lining required
- Pump Tanks - all alloy no brick lining required
- Acid Distributors - high efficiency trough type or cost effective pipe type

NORAM ENGINEERING AND CONSTRUCTORS LTD.

Suite #1800 – 200 Granville Street
Vancouver, British Columbia, Canada, V6C1S4
Tel: 604-681-2030 Fax: 604-683-9164

E-mail: acid@noram-eng.com Website: www.noram-eng.com

**Ask about the products and services
NORAM supplies to the sulfuric acid industry:**

NORAM PLANTS, PROCESSES, SYSTEMS, AND PROCESS EQUIPMENT

NORAM PLANT UPGRADE AND DEBOTTLENECKING ENGINEERING STUDIES
NORAM/CPPE HYBRID SULFURIC ACID PROCESS (HSAP)
NORAM CLEAN START™ PROCESS
NORAM PLANT PREHEATING SYSTEMS
NORAM'S TURBOSCRUBBER FOR GAS SCRUBBING
NORAM STAINLESS STEEL CATALYTIC CONVERTERS
NORAM RF™ RADIAL FLOW GAS-TO-GAS HEAT EXCHANGERS
NORAM SF™ SPLIT FLOW GAS-TO-GAS HEAT EXCHANGERS
NORAM BRICK-LINED ACID TOWERS
NORAM SULFUR & SPENT ACID BURNERS
NORAM CELLCHEM SULFUR BURNERS
NORAM ANODICALLY PROTECTED ACID COOLERS
NORAM SX® ACID COOLERS
NORAM SX® TOWERS AND NORAM SX® PUMP TANKS

NORAM EQUIPMENT INTERNALS, PERIPHERALS AND ANCILLARY EQUIPMENT

NORAM HP™ SADDLE PACKING FOR ACID TOWERS
NORAM SMART™ ACID DISTRIBUTORS FOR ACID TOWERS
NORAM TROUGH ACID DISTRIBUTORS FOR ACID TOWERS
NORAM SX® CHIPGUARD CG™ ACID STRAINER
NORAM ENTRAINMENT MITIGATION DEVICE (EMD)
NORAM ACID DILUTION SYSTEMS
NORAM SX® MATERIAL
NORAM SX® ACID DISTRIBUTORS
NORAM SX® PIPING
NORAM SX® VALVES
NORAM GAS DUCTING
NORAM DAMPER
NORAM SULFUR GUNS

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