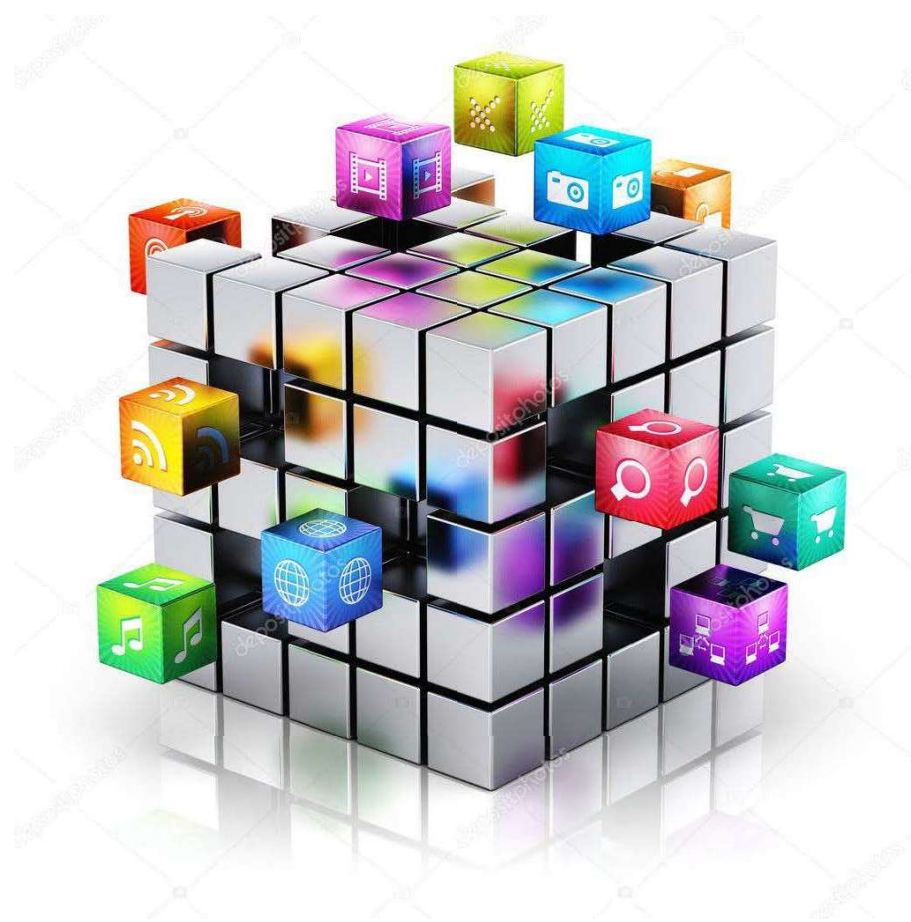
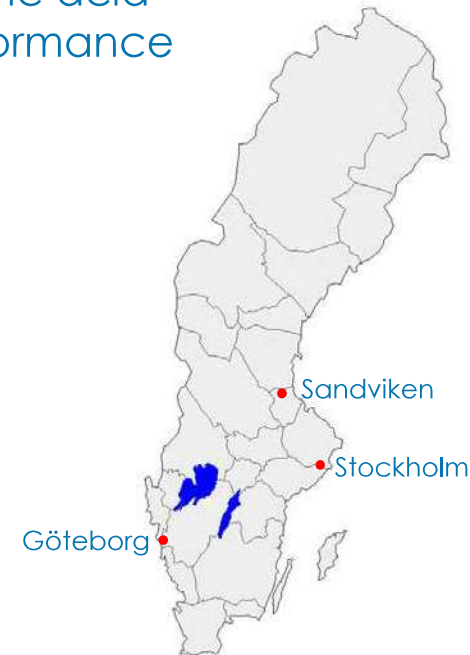


NORAM SX™- Material – Technical (Applications)



NORAM SX™- History and Background

- NORAM SX™ is the trademark for the austenitic stainless steel
- The steel was developed by Sandvik in Sweden early 70's specifically for the use in hot concentrated sulphuric acid.
- SX steel is considered the benchmark in sulphuric acid service with over 25 years of unparalleled performance offering numerous advantages over other material of construction.



NORAM SX™ Mechanical composition

NORAM SX™ is a fully austenitic material

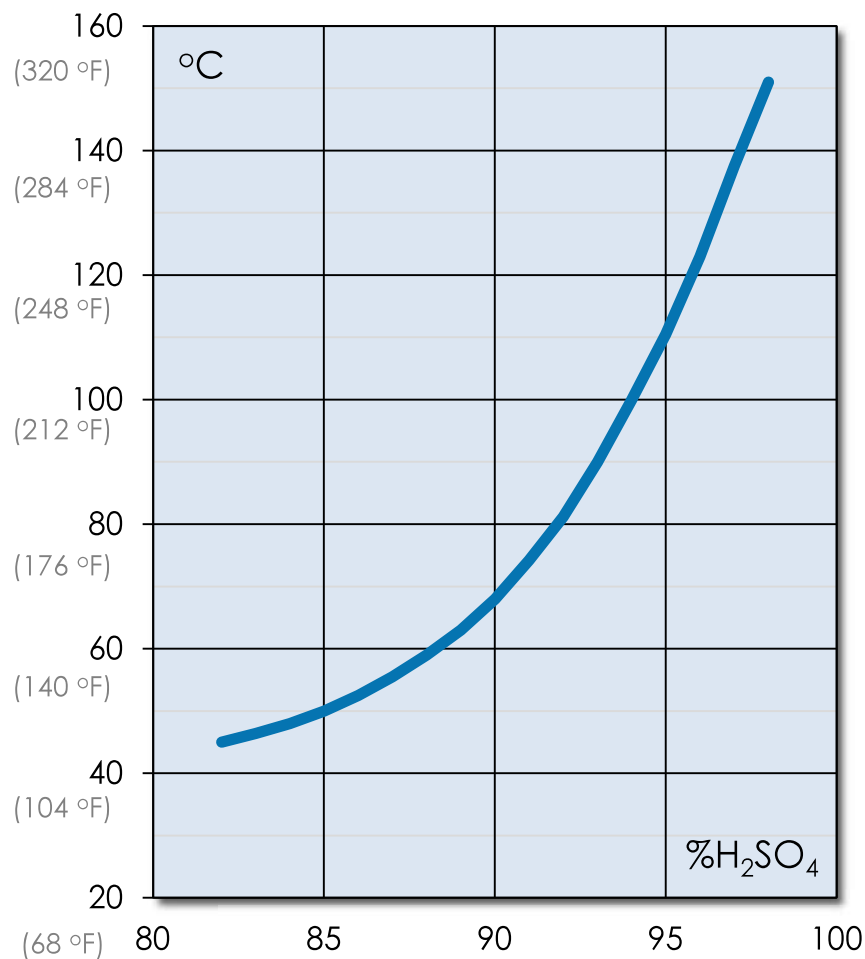
Mechanical strength very similar to 316L

Cr	Ni	Si	Mn	Cu	Mo	C
16.5-19.5%	19.-22.0%	4.8-6.0%	2.0%	1.5-2.5%	0.3-1.5%	0.01%

Alloy elements function/influence in NORAM SX™

- Si** Above 3% increases resistance for sulphuric acid
- C** Increases mechanical strength, decreases ductility forging and welding properties.
Has no influence of corrosion resistance to water, acids and hot gases.
- Cr** Increases hardness and strength
Above 12% makes steel stainless
Increases resistance to pitting corrosion.
Forms wear resistance carbides.
- Ni** Stabilize austenite and makes steel ductile.
- Mo** Provides good resistance to general corrosion in acid environments and good resistance to pitting corrosion.
- Cu** Increases general corrosion resistance in acidic environments

NORAM SX™ Isocorrosion curve 0,1 mm/ year



Acid concentration 98,0-99,9 %	
Temp	Max Fluoride conc.
≤ 75 °C	5 ppm F ⁻
76-95 °C	2 ppm F ⁻
≥ 96 °C	1 ppm F ⁻

NORAM SX™ Material

- NORAM SX™ material can be used in a number of services in hot concentrated Sulphuric Acid.



NORAM SX™ Material

- NORAM SX™ material can be used in a number of services in hot concentrated Sulphuric Acid.



Availability of NORAM SX™ Base Material

- Plate from 3 mm – 40 mm thickness
- Pipe from 1" (DN 25) – 36" (DN 900)
- Fittings 1" (DN 25) – 36" (DN 900) Elbows, Tees, Reducers etc.
- Tubes ¾" BWG 18 for Heat Exchangers
- Round bar Ø40 mm
- Weld Filler Wire and covered electrodes
- Wire Mesh opening 4,8 mm, approx. 40% open area for Strainers