

**ZERON 100 Advantages**

In mining applications and other industries where sulfuric acid is used, alloy 20 has been a commonly used alloy. ZERON 100 is less well known but offers some significant advantages over alloy 20 in both sulfuric acid and acids with chlorides. Alloy 20 is an austenitic nickel alloy with additions of molybdenum and copper. ZERON 100 is a super duplex stainless steel that provides similar results with a much leaner chemistry. The advantages of Zeron 100 are listed below:

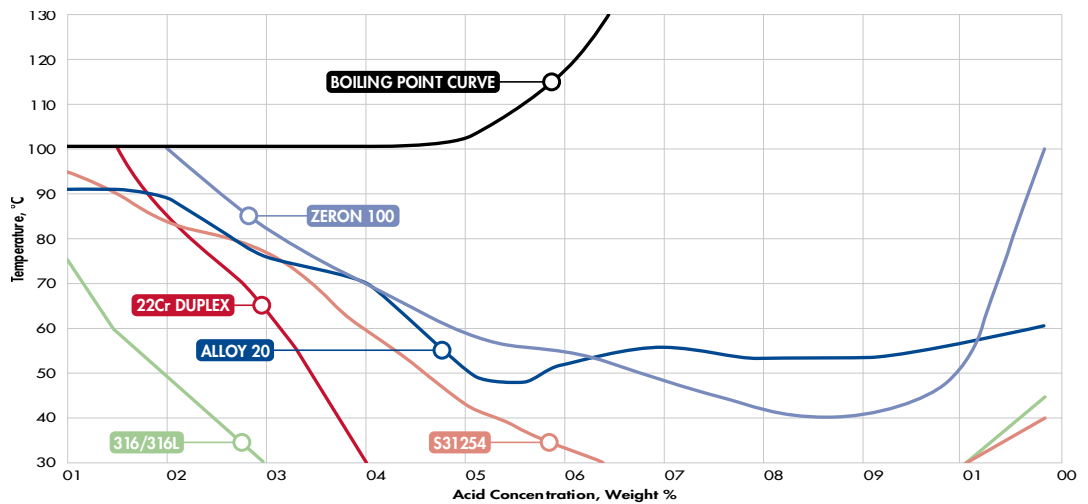
- Better corrosion resistance to sulfuric acid at most concentrations.
- Better corrosion resistance to sulfuric acid containing chlorides at most concentrations.
- Better resistance to oxidizing acidic chloride solutions (e.g. ASTM G48, ASTM G28A).
- The higher strength and hardness of ZERON 100 compared with alloy 20 mean that ZERON 100 has better resistance to erosion corrosion.
- Higher strength and higher design stresses. This reduces costs by reducing thickness, welding time and welding costs.
- The lean nickel content of ZERON 100 gives significant cost savings.
- ZERON 100 is readily available in a wider range of product forms.

**Nominal Chemical Composition, %**

	Cr	Ni	Mo	N	Cu	W	Si	Cu	Mn	C	Cl	Fe	PRE <sub>N</sub> *
ZERON® 100 UNS S32760	25.0	7.0	3.6	0.22	0.7	0.7	0.25	0.7	0.5	0.02	—	balance	41
Alloy 20 UNS N08020	20.0	33.0	2.2	—	3.3	—	0.4	—	0.4	0.2	0.5	balance	27

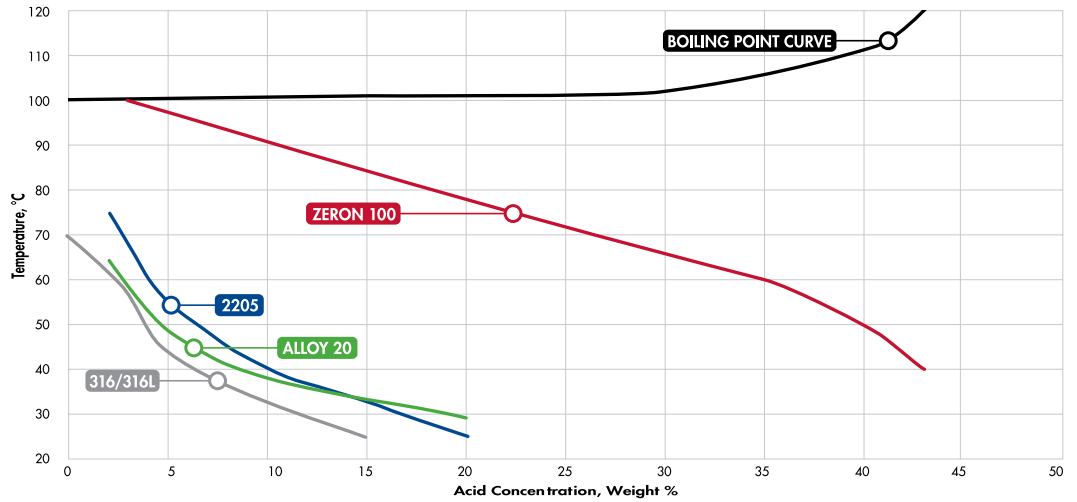
\*PRE<sub>N</sub> = CR + 3.3Mo + 16N

**Iso-corrosion Curves**  
Sulfuric Acid 0.004 ipy



### Iso-corrosion Curves

Sulfuric Acid 0.004 ipy  
plus 2,000 mg/l Chloride



### Mechanical Properties

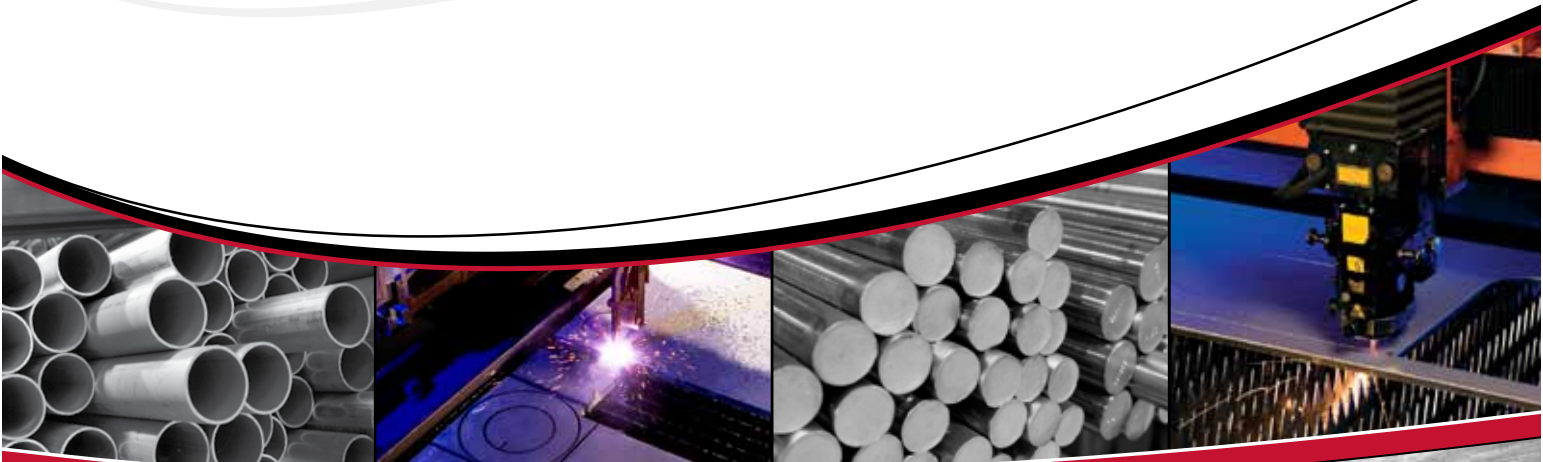
#### Minimum Specified Properties, Plate

	ZERON 100	Alloy 20
Ultimate Tensile Strength, ksi	109	80
0.2% Yield Strength, ksi	80	35
Elongation, %	25	30
Hardness MAX, HRC	28	19

### ASME Section VIII Div 1 Maximum Design Allowable Stresses

Temperature	°F	100	200	300	400	500
ZERON 100	ksi	31.1	31.0	29.4	29.0	29.0
Alloy 20	ksi	22.9	22.9	22.6	22.2	22.1

ZERON 100 Code Case 2245-1



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