

Table 30.3 Typical acid plant acid system materials of construction

Equipment	Typical materials	Alternate materials
Drying tower	Shell: A-36 or A516 Gr.70 Corrosion barrier: Pecora mastic and Teflon® Brick: acid-proof red shale (ASTM C279-54) (or fireclay) Mortar: potassium silicate (sodium and fluoride free) Packing support: ceramic (self supporting) or Aludur® beams on acid-proof brick arches Packing: ceramic (ASTM C515-95(2007))	Shell: SX®, SARAMET, or ZeCor® Corrosion barrier: none Packing support: SX®, SARAMET, or ZeCor® Packing: stoneware
Stripping tower		
Absorption tower		
Drying tower mist eliminator	Mesh: alloy 20/Teflon®, frame: alloy 20, housing: 316L stainless steel	—
Absorption tower mist eliminator	Element: glass fiber, frame: 316L stainless steel, housing: 316L	—
Acid pump tanks	Shell: A-36 or A516 Gr.70 Corrosion barrier: Pecora mastic and Teflon® Brick: acid-proof red shale (ASTM C279-54) (or fireclay) Mortar: potassium silicate (sodium and fluoride free) Dilution water sparge pipes: solid Teflon®	Shell: SX®, SARAMET, or ZeCor® Lining: none
Acid storage tanks	Carbon steel: A36 or A516 Gr.70 Anodically protected carbon steel 304 or 316L stainless steel (small capacity tanks only)	
Acid circulation pumps	Casing: alloyed cast iron Impeller: Lewmet stainless steel	1.4136S and RHSX (Friatec, 2012) 14/40/5/5 SS, 20/25/4 SS
Acid coolers	Type: anodically protected shell and tube Shell: 304L stainless steel, tubes: 316L stainless steel Tube sheet: 304L stainless steel Channel: carbon steel	Type: nonanodically protected plate and frame Plates: Hastelloy® D-205TM alloy 33 or Hastelloy® C-276 (<90 °C, 98% H ₂ SO ₄) Gaskets: Viton, frame: carbon steel
Acid distributors	SARAMET® or ZeCor® or SX® Ductile cast iron (Mondit™ or Meehanite®)	

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