Phoenix equipment corporation

Plant # 421

1,650 TPD Sulfuric Acid Plant for Sale

Capacity
Design capacity 1,650 TPD
Can run at low capacity of 900 TPD
Contains 300 TPD oleum production unit

Product
99.2% sulfuric acid, water clear

Process Technology
Monsanto single absorption process

Major Equipment (year built)
- Molten sulfur tank (1998)
- Waste heat boiler #1 (1997)
- Waste heat boiler #2 (2007)
- Converter (1995)
- Eeconomizer (2000)
- Absorbing tower (1996)
- Absorbing acid cooler (2003)
- Drying tower (1982)
- Drying tower cooler (2002)
- 98% acid pump tank (2002)
- Product cooler (2003)
- Oleum tower (1992)
- Oleum Pump boot (1998)
- Trim cooler (2002)
- Elliot EPG-4 steam turbine (2012)
- Dilute pump tank (2005)
- Deaerator (1998)
- Air silencer (2004)
- Acid storage tank (2004)
- Spare 98% acid pump tank (1994)
- Spare absorbing acid cooler (1976)

BRIEF PLANT DESCRIPTION

Sulfur is first melted in the sulfur day tank. The molten sulfur is pumped to a buffer pit, and then to sulfur burner. A waste heat boiler (#1) recovers the heat from the sulfur burner to generate sulfur dioxide. The SO2 proceeds to the converter, where it is converted to SO3. The converter consists of 4 beds of vanadium pentoxide (V2O5) catalyst. The first pass has 56,000 liters of catalyst, 2nd pass 62,400 liters, 3rd pass 77,000 liters and 4th pass 132,000 liters. A second waste heat boiler (#2) recycles the heat from the converter. The SO3 stream passes the economizer, which increases the efficiency of the operation, and then goes into a single absorbing tower. Here the SO3 is absorbed into water. The absorbing tower has 60 Mist eliminators, 5,569 cubic feet ceramic packing. The raw sulfuric acid solution goes to a drying tower which takes air from the main air blower for drying. The drying tower has mesh pads, 4,560 cubic feet ceramic packing. The sulfuric acid product of 98% is then pumped into an intermediate tank and through coolers before entering product storage tanks. The plant reliability is excellent and estimated to be around 98% on-line, with a budget of 12 days per year allocated for routine maintenance by a crew of 6 maintenance staffs. Plant turnarounds are typically taken every 3 years.

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