About Us

INSANIA ENERGI serve you to increase your performance as well as to create a long term relationship with you to help you stay ahead at the competition. To do so, we provide a variety of structured consultancy programmers in combination with implementation skills in all relevant areas.

We see our key strengths not only in the development of innovative technologies, which help improve product quality and performance but also in provide service as supervision unloading, loading, start-up process, troubleshooting, evaluate performance and our commitment to close customer relationships. With sales offices two branch in java area, INSANIA ENERGI can meet market requirements for speciality chemical and equipment wherever that market may be. Therefore we are very appreciate your interest in our product and look forward to serving your needs.

INSANIA ENERGI

SULPHONATION AND SULPHURIC ACID PLANT

Provide Solution For Your Business

SULPHONATION

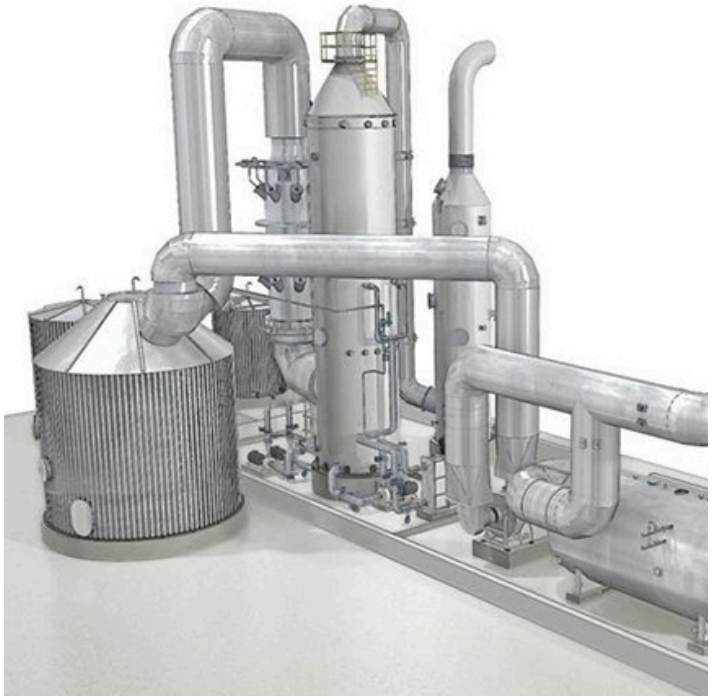
Sulfonation are major industrial chemical processes used to make a diverse range of products, including dyes and color intensifiers, pesticides, organic intermediates and domestic and industrial detergen. Sulfonation is based on reaction between a sulphur trioxide stream diluted in air and an organic base. The reaction is carried out in a stainless steel multi-tube film reactor where the sulphur trioxide stream and the organic base are conveyed in co-current, for a reaction time necessary for a sulphuric group to react with the base and to form an additioned molecule.

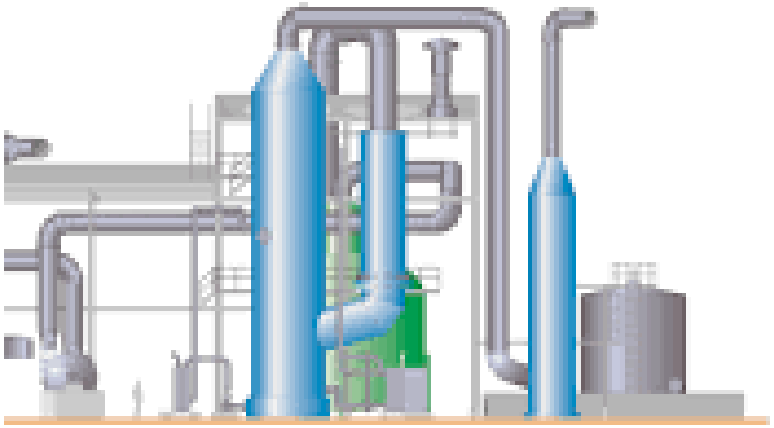
The typical Sulfonation Plant is composed of the following main sections:

- SO3 production
- Sulphonation
- Exhaust gas treatment

Complementary sections of typical sulphonation plant available are the following:

- Neutralization section for SLES or alpha olefin sulphonate (AOS) production
- Hydrolysis section for alpha olefin sulphonate (AOS)
- Sulphuric acid production section





SULFURIC ACID

Sulphuric acid is produced from sulphur. Sulphur dioxide is first obtained by the burning of the molten sulphur in presence of air. Sulphur dioxide is then converted to sulphur trioxide in presence of vanadium pentoxide catalyst. The sulphur trioxide thus obtained is absorbed in recycling concentrated sulphuric acid in an absorption tower. The plants installed earlier and the smaller units of sulphuric acid plants use a single absorption process which has conversion efficiency of 96–98%. New large sulphuric acid production plants now–a–days utilize double conversion double absorption (DCDA) process. DCDA process can realize above 99% conversion efficiency.

In the contact process, the process plants are generally characterized according to the raw materials charged to them: (1) combustion of elemental sulfur, (2) combustion of spent sulfuric acid and hydrogen sulfide, and (3) combustion of metal sulfide ores and smelter gas burning. More specifically, the contact process incorporates three basic operations, each of which corresponds to a distinct chemical reaction. First, the sulfur in the feedstock is oxidized (burned) to sulfur dioxide:

S + O2 ---> SO2

The resulting sulfur dioxide is fed to a process unit (often referred to as the converter) where it is catalytically oxidized to sulfur trioxide:

2SO + 2O2 --> 2SO3

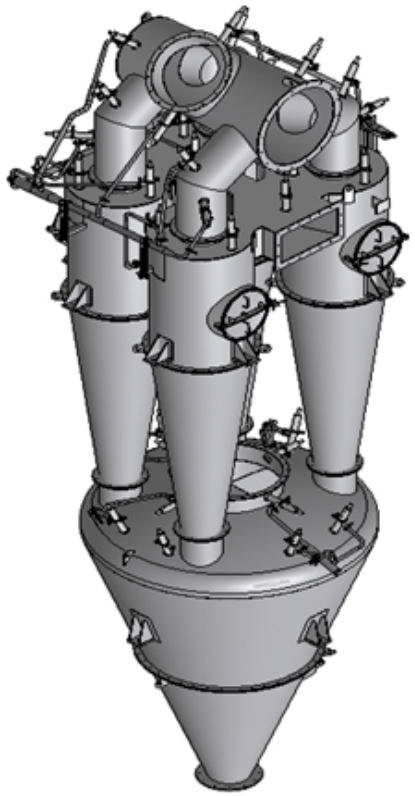
Finally, the sulfur trioxide is absorbed in a strong sulfuric acid (98%) solution:

SO3 + H2O --> H2SO4

Industrial Cyclones
Fisher-Klosterman

- High temperature – more than 2400°F
- Abrasion Resistant Linings - Extended Equipment life
- Internal or External insulation
- Explosion Venting/Containment
- Design Flexibility - Space and Performance requirements
- Ultra-high Efficiency - product recovery or emission control
- High pressure or vacuum design, ASME “U” stamp
- Corrosion Resistant Alloys

- Main factors for cyclone efficiency
  How quickly the particle moves towards the wall or collection area
- Time available for collection: **Residence Time**
- Two main factors describe cyclone performance
  Pressure drop
  Fractional efficiency curve (FEC)



Advantages

- Low Total Cost of Ownership
- Specifically tailored efficiency to meet your application needs
- Sophisticated computer modeling allows us to offer guaranteed performance when provided with complete operating information
- High reliability
- Long life due to premium quality materials and abrasion resistant linings
- Maximum performance and efficiency

INSANIA ENERGI

For almost seventy years, CECO’s Fisher-Klosterman has built and supplied custom-made air pollution equipment. Fisher-Klosterman equipment has offered distinctively effective long-term air pollution control and product recovery equipment for a variety of industries where other hardware providers have failed.

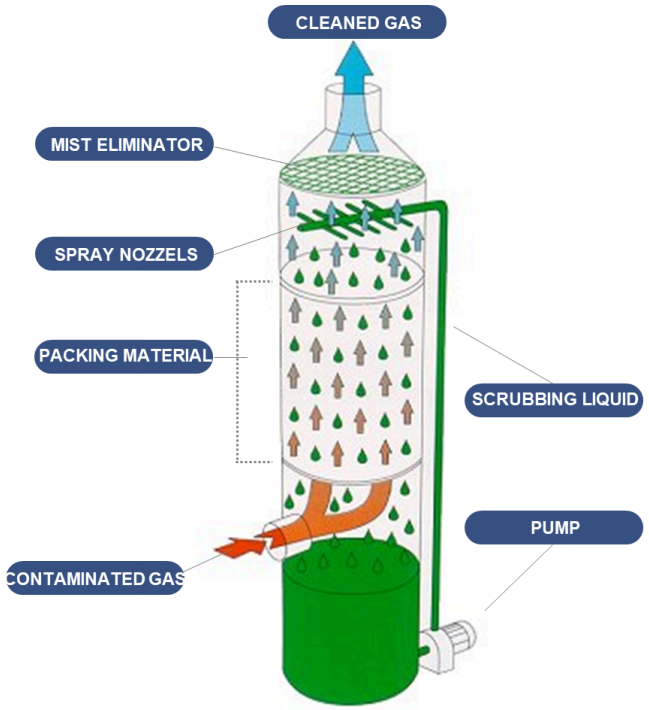
Product

- **Sluice Scrubber**
  Sluice formed after acid purification process
- **Salt Scrubber, Waste Scrubber**
  acid salts formation and removal
- **Alkaline, Effluent Scrubber**
  Gases produced from main Electolysis process
- **Recovery Scrubber /Separator**
  Salt solution Electroysis to separate feed into chlorine,
- **Alkaline Scrubber**
  Chlorine recovery from Effluent gas stream.

CECO ENVIRONMENTAL

Industrial Scrubbers

Industrial scrubbers are pollution control devices that use liquid to wash unwanted pollutants from a gas stream, or that inject a dry reagent or slurry into a dirty exhaust stream to “wash out” acid gases. Industrial scrubbers are one of the primary devices that control gaseous emissions, especially acid gases.



Advantages

- Low-risk processing of incendiary gases
- Ability to handle high-temperature, high-humidity gas streams without temperature limit or condensation problems
- Small space requirements mean lower capital costs and site location flexibility – scrubbers reduce the temperature and volume of unsaturated exhaust streams, permitting vessel sizes, fans and ducts to be more compact. This also enables retro-fitting into existing systems
- No secondary dust sources – once particulate matter is collected, it cannot escape from hoppers or during transport
- Ability to absorb gas and solid particulate matter via a single device
- Ability to neutralize corrosive gases

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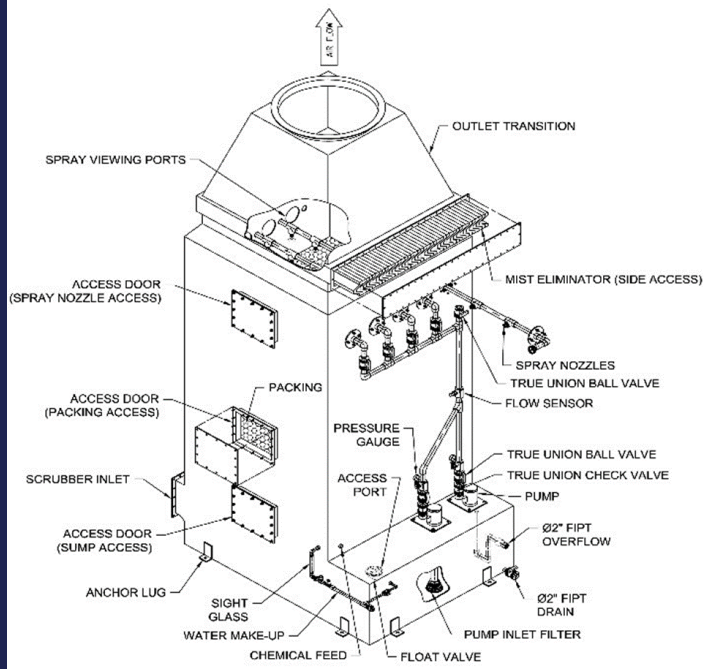
Product

- **Effluent Scrubber**

  Wet gas scrubber, SO2, HCI emissions from kiln, preheater exhaust.
- **Cement Kiln Dust (CKD) scrubber**

  emissions from kiln
- **Gas Scrubber**

  preheater exhaust



CECO ENVIRONMENTAL

Ceco Filters (CF)

Candle filters, Acid services

- High temperature – more than 2400°F
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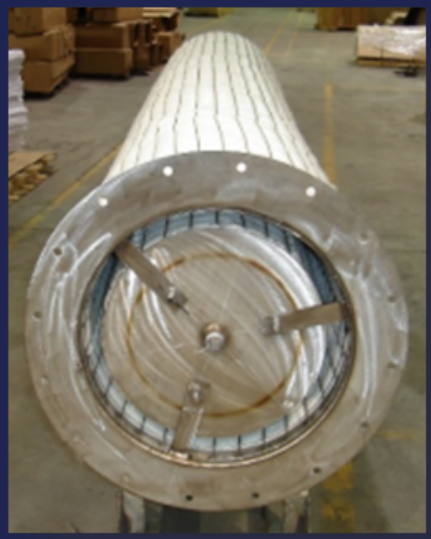
INSANIA ENERGI

Product

- **Drying Tower (Impaction Candle Filters, Mesh Pad)**
- **Intermediate, Interpass Absorption Tower (Impaction Candle Filters)**
- **Final Absorption Tower (Impaction Candle Filters)**
- **Oleum Production (Impaction Candle Filters)**
- **Acid Mist Elimination (Impaction Candle Filters)**
- **Scrubbing Tower (Impaction Candle Filters)**

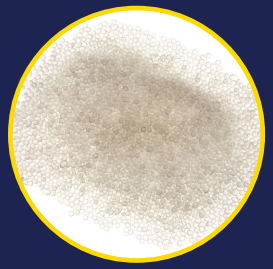


CECO ENVIRONMENTAL

OUR CHEMICAL SUPPPORT

INSANIA ENERGI

CERAMIC BALL



Ceramic ball has good applications for precision bearings dan bearing tracks. The hardness of ceramic ball can reduce the coefficient of friction, thereby maximizing the among of energy converted to work. In the sulphonation plant, ceramic ball often used in the reactor converter for catalyst bed support layer. It have component Al2O3 and SiO2 with different ceramic size.

REFRACTORY BALL

Refractory ball is a chemical that contains AL2O3 and Fe2O3, compressive strength around ≥ 2350 kg /cm2, chemical stability and good performance at high temperature to 1900 oC. It is usually used in the shift converter and reformer in the ammonia plant, furnace in the ceramic and sulfonation plant, as a support ball in the catalyst reactor.

SILICA GEL

Silica gel is a porous, amorphous form of silica (SiO2). Although it has the same chemical composition as sand, silica gel is radically different from other SiO2-based materials, due to its unique internal structure. Unlike zeolites, silica gels have larger pores with a wide range of diameters – typically between 5 Å and 300 Å – and do not allow for the separation of molecules by size alone.

ACTIVATED ALUMINA

Activated alumina is made from aluminum hydroxide (Al2O3.nH2O) with dehydroxylating in a way that produces highly porous material. Activated alumina desiccant is a standard high performance, high porosity, high surface area activated alumina in beaded form.

CATALYST

The catalytic SO2 converter is the heart of the sulfuric acid plant and the quality and characteristics of the selected catalysts are crucial to a reliable and energy-efficient operation. The catalyst properties are influenced by the chemical composition, the physical properties including the nature of the support material and the manufacturing process.

Topsoe VK catalysts are uniquely balanced to combine high and stable activity, robustness, low-pressure drop and a long service life. Over the years Topsoe has brought major product breakthroughs to the market, providing the industry with new catalysts for more energy-efficient operation, lower SO2 emissions and higher production rates. Topsoe's VK series comprises five different formulations in a variety of sizes and shapes, effectively covering all operating conditions in any sulfuric acid plant.

INSANIA GROUP

TOTAL PETROKEM INDONESIA

INSANIA AIR SOLUTION

PETROSORB INDONESIA

INSANIA ENERGI

In Collaboration with

CECO ENVIRONMENTAL

GRACE Enriching Lives, Everywhere.

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