

Spent Acid Recycling



ADVANCED SOLUTIONS



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Worley Chemetics is a global technology, solutions and equipment fabrication provider for sulphuric acid, chlorine chemicals and other specialty chemical facilities. Our specialized equipment, systems and plants help our customers to achieve higher capacities and reliability, lower operating costs, decrease emissions, improve safety and maximize long term profits.

FACING THE PROBLEM OF SPENT ACIDS

Sulphuric and nitric acids are crucial to your business, but dealing with spent acid with the dilute contaminated by-product of many processes is becoming increasingly complex. Neutralizing spent acid is expensive. On the other hand, environmentally acceptable disposal options may be severely limited by ever tightening regulations. Worley Chemetics can offer solutions in this changing world.

SPENT ACID HAS VALUE

Worley Chemetics' technology can recover spent acid to produce commercial concentrations. This sulphuric or nitric acid can then be sold or reused in your process, greatly reducing the costs of purchasing fresh acid from outside suppliers. Recycling also eliminates the expense of spent acid neutralization and the headaches associated with disposing of acid waste into the environment. There is a possibility of reusing water removed from diluted spent acid. It helps in reduction of fresh water consumption at site and minimize hazardous effluent generation by recycling valuable organics removed from spent acid to upstream process.

In the early 1970's we revolutionized the sulphuric acid concentration business with our patented vacuum process for spent acids generated by the explosives industry. By 1975 we were designing and building turnkey plants to recover and concentrate spent acids produced in a variety of industries. The spent acid plants designed and built by Worley Chemetics process a wide range of spent acids derived from the manufacture base and specialty chemicals.



SPENT ACID SOURCES:

- Acrylonitrile
- Drying chlorine
- Hydroxylamine
- Methyl-methacrylate
- MNT / DNT / TNT
- Nitrobenzene
- Nitrochlorobenzene
- Nitro-glycerine
- Organic intermediates
- Pesticides
- Silicone monomer
- Specialty nitrations
- Titanium dioxide

ACID PROCESSING TECHNOLOGIES

Our objective is to improve the capability, reliability, efficiency and environmental acceptability of your operations with innovative technical solutions. To facilitate your present and future needs for managing spent acid processing we offer distinct process technologies. Each spent acid plant utilizes one or more of these processes to create a custom design suitable for your particular application.



PURIFICATION — Processes for Sulphuric or Nitric Acid contaminated with volatile or oxidizable contaminants are purified in our purification columns prior to vacuum concentration. Minimization of energy use and maximizing removal efficiencies take centre stage. Inorganic contaminants are removed by (membrane) filtration or precipitation.

CONCENTRATION — Processes for concentrating Sulphuric or Nitric Acid. Dilute acid streams (as low as 5-10 wt%) are concentrated using multiple effect evaporators or vapour recompression techniques to minimize energy use. Higher strength acids are concentrated in (multiple) vacuum evaporators. The final product is either commercial concentrations for sale or a customized acid concentration for recycle into your operation.

WASTE TREATMENT — A variety of processes to create more value from the contaminants removed in the purification steps. Most common examples are Production of nitric acid from NO_x fumes and the Separation of organic/water mixtures to recover valuable organics or minimize organic effluents. We work with you to get the most value out of the spent acid and create solutions that work for your specific situation. Our technologies will meet any environmental discharge limits at your location.

QUALITY IS A PRIORITY

Quality is a critical aspect of our operations from initial inquiry through to final delivery. At Worley Chemetics we've gained an international reputation for integrity, expertise and the time and energy we'll spend in ensuring total customer satisfaction in our service and products. All plant and equipment performance is backed by comprehensive process and mechanical guarantees.

THE SPENT ACID GROUP

This group is responsible for process design and development, commissioning and technical service of equipment specifically designed for the recovery and concentration of spent acid. We maintain laboratory facilities where we can test your acid and find potential processing problems, allowing us to modify the process design and avoid costly problems during your plant start-up.

INTERNATIONAL, INNOVATIVE AND RESOURCEFUL

Worley Chemetics' parent company, Worley Engineering Group Inc. is one of the world's largest and most diverse providers of professional technical services, including all aspects of engineering, architecture, construction, and operations and maintenance as well as scientific and specialty consulting. We serve a large array of companies and organizations, including industrial, commercial and government clients across multiple markets and geographies.





Our purpose is delivering a more sustainable world

Protecting our people and environment's well-being is integral to the way we do business. We are committed to providing a safe, healthy and respectful world, where we look out for and support one another, and we care about the environment and the communities in which we work.

Worley Chemetics will:

- Provide our employees with the appropriate guidance, equipment and tools to work in a safe and responsible manner
- Ask, listen and respond openly to our people, contractors and customers to ensure their input is included in decisions impacting workplace health and safety, and the protection of the environments we operate within
- Encourage curiosity and learning to identify, assess and manage risks
- Promote and implement programs for the well-being of our people and for the prevention of injury and ill health
- Position ourselves, together with helping our customers and industry partners, to meet a low carbon future, and strive to manage our actions to reduce our emissions and waste
- Take considered, responsible action to drive continuous and innovative improvement objectives and outcomes in health, safety and environmental performance.

Responsibility for the application of this policy rests with us all.

Discover how we can help you

CONTACT US TO LEARN MORE



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