In sulphuric acid production, the ability to recover costly heat energy effectively makes a substantial difference to your bottom line.

Alfa Laval is the partner with the experience that will help you turn this valuable energy into major revenue opportunities.
Recovered heat opens new doors

Worldwide chemical
Once known as oil of vitriol, a name connecting it to the 18th century alchemist who is thought to have discovered it, sulphuric acid has subsequently become the most extensively used chemical in the world. Thousands of plants now produce hundreds of millions of tons of this valuable energy releases substantial quantities of heat. Large-scale production of sulphuric acid has subsequently become the most extensively used chemical in the world.

Putting heat to best use

Thousands of plants now produce this valuable energy to a wider range of operators throughout the world now put this energy to new use or – when appropriate – sell it on the open market.

Enterprising sulphuric acid plant operators are therefore increasingly selling it on the open market.

Maximizing heat recovery

The closer the temperature approach between two fluids in a plate heat exchanger, the more heat is recovered. As illustrated, Alfa Laval heat transfer equipment enables you to achieve as close a temperature approach as possible.

Thermal efficiency

The formulation thermal efficiency of Alfa Laval plate heat exchangers makes it possible to recover as much energy as you can normally recover the investment within a year. In many cases, you can actually achieve payback within as little as six months.

With current energy prices, some of Alfa Laval’s customers have shown they can generate more revenue from selling recovered heat than from their actual sulphuric acid production.

As just one example, the Balder, Nalpedake plant in Finland uses Alfa Laval heat exchangers to recover no less than 40 MW of heat. This is then used in the processing of nickel (12 MW) and copper (8 MW), with 20 MW being sold for use in district heating.

This means a much smaller heat transfer surface area is needed to achieve any given capacity. Alfa Laval heat exchangers are therefore much smaller than traditional shell-and-tube heat exchangers. This space-saving footprint also cuts back on installation costs.

The technology payoff

Heat recovery using Alfa Laval plate heat exchangers

Heat recovery using traditional shell and tube heat exchangers

Experience counts

Alfa Laval is a world leader in developing and implementing heat transfer technology. It has more than 40 years’ experience in recovering heat from sulphuric acid production, with a track record that features more than a thousand installations all over the globe.

Risk reduction

Sulphuric acid production always involves highly aggressive operating environments. The right selection of corrosion-resistant plate materials and high-resilience gaskets available from Alfa Laval can prevent the risk of any unplanned shutdowns – or unscheduled downtime.

Rapid payback

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Worldwide partner

The worldwide Alfa Laval parts and service organization is staffed by experienced service engineers, ready to assist you with performance evaluation, troubleshooting and field service – even at short notice. If you need assistance, Alfa Laval experts can be on the site within two days.

We also maintain a specialist materials lab staffed by chemical engineers and materials specialists, ready to analyze which heat exchanger and gasket materials would be most cost-effective in your particular plant and production configuration.
Recovered heat opens new doors

Worldwide chemical

Once known as oil of vitriol, a name coined by 13th-century alchemists who thought it had discovered a sulphuric acid that has subsequently become the most extensively used chemical in the world. Thousands of plants now produce millions of tons of this aggressive mineral acid every year, and it is used extensively in countless manufacturing operations.

Putting heat to best use

Large-scale production of sulphuric acid releases substantial quantities of heat. Due to current energy prices, this has led to a significant commercial interest in recovering heat from sulphuric acid production in order to put the energy to use – or, when appropriate – sell it on the open market.

Thermal efficiency

The formidable thermal efficiency of Alfa Laval plate heat exchangers makes it possible to recover as much energy from sulphuric acid production as is possible to recover from any advanced power plant.

Maximizing heat recovery

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Experience counts

If you want to use heat exchangers to recover the maximum amount of heat, you need to be confident that your supplier knows the technology, in-depth, and is capable of applying it under these kinds of extreme operating conditions.

Alfa Laval is a world leader in developing and implementing heat transfer technology. Alfa Laval has more than 40 years’ experience in recovering heat from sulphuric acid production, with a track record that features more than a thousand installations all over the globe.

Heat exchangers for sulphuric acid plants

Alfa Laval products used in sulphuric acid plants

Using semi-welded Alfa Laval heat exchangers with plates made of HASTELLOY® C-276 (nickel-based) corrosion-resistant plate materials, it is possible to recover heat from concentrated sulphuric acid at temperatures as high as 350°C. This makes it feasible to recover heat at levels once thought beyond the reach of plate heat exchangers, and to apply this valuable energy to a wider range of different uses.

Alfa Laval heat exchangers provide an efficient solution for recovering heat from sulphuric acid production. The compactness of Alfa Laval heat exchangers makes it possible to achieve maximum heat recovery with a small footprint. The efficiency of Alfa Laval plate heat exchangers makes it possible to achieve maximum heat recovery with a small footprint.

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Recovered heat opens new doors

Worldwide chemical
Once known as oil of vitriol, a name connected to the alchemist who is thought to have discovered it, sulphuric acid has subsequently become the most extensively used chemical in the world. Due to current energy prices, this valuable energy can be recovered efficiently and reliably. Anything else is effectively money down the drain.

Plant operators are therefore increasingly on the lookout for ways to recover as much heat as possible from their sulphuric acid production in order to put the energy to new use — where appropriate — sell it on the open market.

Large-scale production of sulphuric acid releases substantial quantities of heat. Hundreds of millions of tons of this extensively used chemical in the world has subsequently become the most energy-intensive chemical in the world.

Putting heat to best use

Once known as oil of vitriol, a name connected to the alchemist who is thought to have discovered it, sulphuric acid now uses Alfa Laval heat exchangers to recover so much energy that you can normally recoup the investment within a year. In many cases, you can actually achieve payback within as little as six months.

Worldwide partner

Alfa Laval is a world leader in developing, designing and implementing heat transfer technology. It has more than 45 years’ experience in recovering heat from sulphuric acid production, with a track record that features more than a thousand installations all over the globe.

Rapid payback

The efficiency of Alfa Laval plate heat exchangers makes it possible to recover as much energy as you can normally recoup the investment within a year. In many cases, you can actually achieve payback within as little as six months.

Maximizing heat recovery

The closer the temperature approach between two fluids in a plate heat exchanger, the more heat is recovered. As illustrated, Alfa Laval heat transfer equipment enables you to achieve a close temperature approach as shown.

Thermal efficiency

The formidable thermal efficiency of Alfa Laval plate heat exchangers makes them ideal for both heat recovery and other duties in conjunction with sulphuric acid production, with the added benefits of low installation, operating and maintenance costs.

Experience counts

For more than a thousand installations all over the globe, Alfa Laval has showcased the efficiency of its plate heat exchangers, and to apply this valuable energy to a wider range of different uses. 

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The technology payoff

Alfa Laval has a worldwide service organization that provides on-site technical assistance to recover the maximum amount of heat. Your supplier knows the technology in-depth and is capable of applying it under these kinds of extreme operating conditions.

Alfa Laval products used in sulphuric acid plants

Experience counts

- DIABON® plate heat exchangers for oleum cooling and oleum/oil of vitriol interchanges
- Spiral heat exchangers for cooling and scrubber acid cooling
- HASTELLOY® C-276 (a nickel-based alloy), matched with extremely durable alloy, matched with extremely durable C-276, respectively.
- HASTELLOY® D-205, respectively.

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Corrosion-resistant plate materials

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Experience counts

For more than a thousand installations all over the globe, Alfa Laval has showcased the efficiency of its plate heat exchangers, and to apply this valuable energy to a wider range of different uses.
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