The best example: nitrous oxide

The environmental benefit of disposing of nitrous oxide is particularly marked. Nitrous oxide has a so-called global warming factor of around 300. That means its contribution to the greenhouse effect is 300 times as strong as the same amount of carbon dioxide. Messer's residual gas disposal plant removes the equivalent of around 2,000 tons of carbon dioxide a year through the treatment of residual nitrous oxide from the medical sector alone.

The environmental benefit of residual gas disposal is particularly marked with nitrous oxide.

Your advantages at a glance:

- absolutely reliable and professional residual gas disposal
- complete compliance with statutory requirements
- maximum environmental protection
- very easy to use as part of cylinder cycle

Messer - a strong partner

Messer is one of the leading producers of industrial gases, with more than 60 companies operating in over 30 countries throughout Europe and Asia as well as in Peru. Its international operations are directed from Frankfurt, while the central technical functions of logistics, engineering, production and technology management are performed from Krefeld. Messer is the largest owner-managed industrial gas company, employing more than 4,200 people.

MESSER
Gases for Life

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Part of the **Messer** World

MESSER
Gases for Life

Environment friendly

Recycling and disposal of residual gases

Responsible action

“As a member of society, we are committed to protecting the environment.”

Responsible treatment of nature and its resources is firmly established in the corporate philosophy of the Messer Group. Messer uses environmentally friendly technologies and develops gas applications as an innovative alternative to processes that pollute. This environmentally friendly approach also extends to the way Messer supplies its customers with gases.

A clean solution right to the end

Pure gases and gas mixtures are largely supplied to customers in rental cylinders. When the cylinder is returned after use, it usually contains a small residue of gas. In most cases, the cylinders have to be emptied completely before refilling or re-inspection. If the gases in question are toxic, flammable or environmentally hazardous, they are not simply released into the atmosphere but professionally disposed of.

Cylinder handling in the Gumpoldskirchen plant in Austria.

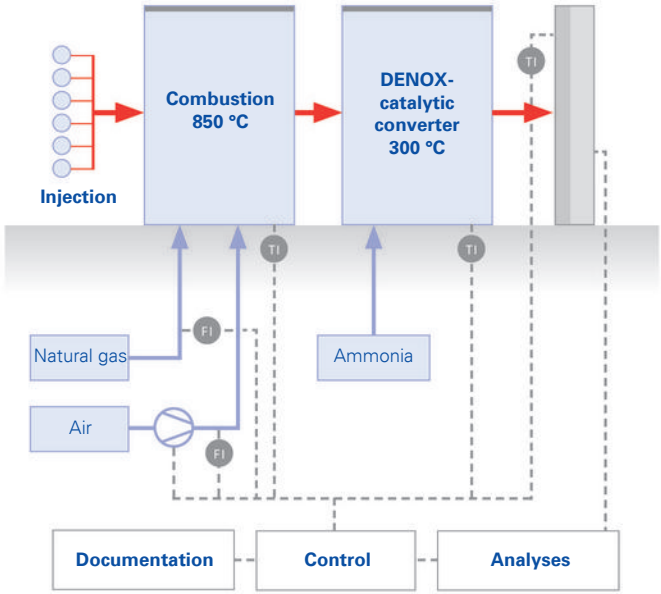
Disposal is fully automatic. Compliance with permissible emission levels is constantly monitored and documented.

Professional disposal

At the central residual gas disposal plant which Messer operates as part of the specialty gas plant in Gumpoldskirchen, Austria, the gas cylinders from all of Messer’s European companies are treated in this way.

The plant meets all environmental and safety requirements and is equipped to deal with the disposal of gas mixtures containing the most important toxic or flammable components, such as ammonia, nitrous oxide, carbon monoxide, hydrocarbons (methane, ethane, propane, etc.), nitrogen monoxide and nitrogen dioxide as well as organic compounds such as aldehydes, ketones and esters. The plant can also dispose of pure gases, such as nitrous oxide, in an environmentally compatible way.

At an operating temperature of approximately 850°C, the residual gases are thermally decomposed, producing mainly carbon dioxide and water. The oxides of nitrogen that are produced as a by-product are reduced to nitrogen and water at a temperature of approximately 300°C. This takes place in a secondary cleaning of flue gas with additional injected ammonia in a DENOX catalytic converter (SCR process – “Selective Catalytic Reduction“). The concentration of oxygen, carbon monoxide, hydrocarbons and oxides of nitrogen in the flue gas is constantly measured and compliance with permissible limits is monitored.



Schematic representation of how the residual gas disposal plant works.