CATALYTIC OXIDATION UNIT
PEROXY STEEL®
WITH AN ATTENTIVE EYE TO NATURE
Stainless steel pickling bath contains an oxidizing substance. In particular, in the traditional baths the nitric acid is used while the new processes use trivalent iron. In order to eliminate from stainless steel pickling baths the hydrogen peroxide, which is expensive and dangerous, Condoroll studied and realized a new pickling process which uses, as an oxidant mean, the cheaper oxygen. The new process, covered by patent and traded with PEROXY STEEL® name allows to achieve the following goals:

**FOR NITRIC HYDROFLUORIC SOLUTIONS**
- To reduce the NOx emissions and therefore the consumption of nitric acid that is regenerated.

**FOR NITRIC SOLUTIIONS**
- NOx Emissions reduction below 100 ppm
- Nitric acid recovery

**NITRIC-FREE solutions**
- No more dangerous hydrogen peroxide
- Reduction of the oxidation costs

**DESCRIPTION OF THE PLANT**
The plant recirculates the pickling solution strictly mixed with the dosed oxygen through reactors containing an oxidizing catalyst. Inside the reactors the oxidizing reaction is immediate thanks to the high active surface of the catalyst which is equal to approx. 300 m²/g. This is a fluid bed reactor and its geometry allows to feed the solution directly without any previous filtration. The catalyst does not get poisoned over the time and it is enough to restore its level decreased from the losses due to mechanical abrasion – approx. 3%/year.

**ADVANTAGES**
- CONVERSION OF A WASTE INTO A SECONDARY RAW MATERIAL
- EXTREMELY ECONOMIC OXIDATION PROCESS

**FOR HYDROCHLORIC BATHS:**
Oxidation of ferrous chloride to sell it as secondary raw material.

**FOR NITRIC HYDROFLUORIC SOLUTIONS**
- Oxidation of ferrous chloride and hydrochloric acid is produced.

In pickling of carbon steel, a waste mainly made by ferrous chloride and hydrochloric acid is produced. Through the oxidation of the ferrous chloride carried out by the use of a Peroxy Steel unit, ferric chloride is produced, which is a product with a moderate commercial value that is extensively used in waste water treatment plants.