CATALYTIC
OXIDATION UNIT

PEROXY STEEL®

WITH AN ATTENTIVE
EYE TO NATURE.

CONDOROILSTAINLESS
RECOVERY TECHNOLOGIES

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CATALYTIC OXIDATION IN STAINLESS STEEL PICKLING
PEROXYSTEEL SERIES

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, Condoroil studied and realized a new pickling process which uses, as an oxidant mean, the cheaper oxygen.

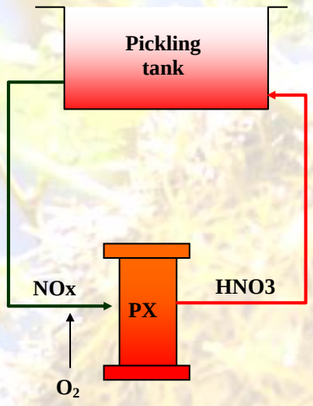
The new process, covered by patent and traded with PEROXY STEEL® name allows to achieve the following goals:

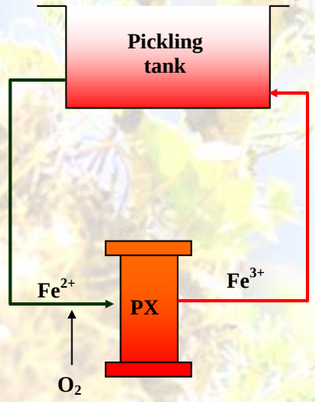
FOR NITRIC HYDROFLUORIC SOLUTIONS

To reduce the NOx emissions and therefore the consumption of nitric acid that is regenerated.

FOR SULPHURIC HYDROFLUORIC SOLUTIONS

To reoxidize the bivalent iron to trivalent iron.





DESCRIPTION OF THE PLANT

The plant re circulates 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 m^2/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

NITRIC SOLUTIONS

- NOx Emissions reduction below 100 ppm
- Nitric acid recovery

NITRIC-FREE solutions

- No more dangerous hydrogen peroxide
- Reduction of the oxidation costs

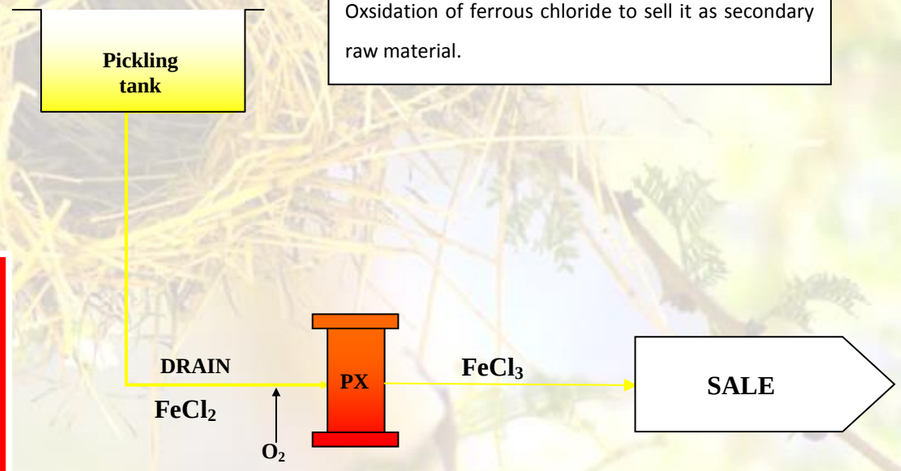
PEROXY STEEL® UNIT IN PICKLING OF CARBON STEEL

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.

FOR HYDROCHLORIC BATHS:

Oxsidation of ferrous chloride to sell it as secondary raw material.



ADVANTAGES

CONVERSION OF A WASTE INTO A SECONDARY RAW MATERIAL

EXTREMELY ECONOMIC OXIDATION PROCESS