



METALS

SPECIAL OXIDE PILOT PLANT

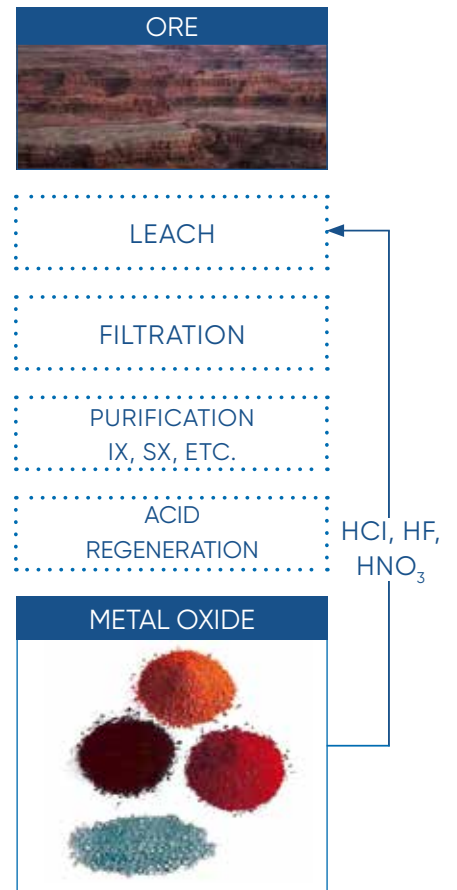
**DEMONSTRATE YOUR PROCESS
WITH ANDRITZ SPRAY ROAST TECHNOLOGY**

ANDRITZ

ENGINEERED SUCCESS

Experts in process development

Are you looking for a closed loop leaching process? Do you have unused metal ore fractions or solutions? Together we develop your process and prove technical feasibility on a pilot scale. We produce valuable metal oxide samples for product demonstration and further investigation. Benefit from our expertise!



FEATURES

- Spray roast acid regeneration pilot plant
- Test production of metal oxides (Fe, Mg, Co, Ni, Mn, Al, special and mixed oxides)
- Regeneration of HCl, HNO₃ and HF
- Modular design to adapt for your specific test requirements
- Capacity: 40-70 l/h of metal solution (typical 100g Me/l)
- Plant location: St. Pölten, Austria



DECOMPOSITION IN THE REACTOR (EXAMPLE)

Material	In	Out
Iron	$2 \text{FeCl}_2 + 2 \text{H}_2\text{O} + \frac{1}{2} \text{O}_2$	$\text{Fe}_2\text{O}_3 + 4 \text{HCl}$
Nickel	$\text{NiCl}_2 + \text{H}_2\text{O}$	$\text{NiO} + 2 \text{HCl}$
Cobalt	$3 \text{CoCl}_2 + 3 \text{H}_2\text{O} + \frac{1}{2} \text{O}_2$	$\text{Co}_3\text{O}_4 + 6 \text{HCl}$



Processed feed solutions

**ESTABLISHED TECHNOLOGY FROM STEEL PICKLING PROCESS
FOR MAGNESIUM OXIDE, NICKEL OXIDE, COBALT OXIDE,
ALUMINUM OXIDE, MIXED OXIDES, AND OTHERS**

HYDROCHLORIC ACID REGENERATION PLANTS

Over 200 plants built
Spray roaster or fluid bed type
Up to 20,000 l/h single plant capacity

PYROMARS: MIXED ACID REGENERATION PLANTS ($\text{HNO}_3 + \text{HF}$)

22 plants built
Special roaster type
Up to 8,500 l/h single plant capacity

METAL OXIDE PLANTS

18 plants built
Special roaster type
Up to 25,000 l/h single plant capacity



mixed oxides

ferrite **Ni**

TiO₂ serpentine

mining processes

magnesia

waste processing

FeCl₃ **Fe**

ferric chloride

Mg iron

synthetic rutile

ore beneficiation

Mn **Al**
alumina **FeCl₂**

cobalt

ilmenite nickel



ENGINEERED SUCCESS FOR FLAT PRODUCT PROCESSING

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