PRODUCTS AND TECHNOLOGIES FOR STAINLESS STEEL PICKLING

WITH AN ATTENTIVE EYE TO NATURE

CONDOROILCHEMICAL
THE SUPPORTABLE CHEMICAL FOR INDUSTRY

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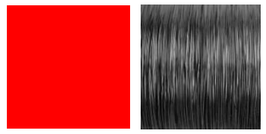

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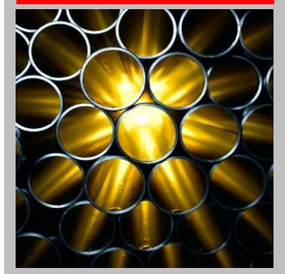
NITRIC FREE PICKLING



DESCALINOX P14
NITRIC FREE PICKLING PRODUCT FOR AUSTENITIC STAINLESS STEEL AND DUPLEX ALLOYS.
IT REQUIRES ADDITION OF HYDROGEN PEROXIDE

DESCALINOX P13
SAME PRODUCT AS DESCALINOX P14. IT IS USED FOR SURFACES FREE OF OILS

DESCALINOX P10
HIGH HF CONTAINING SOLUTION TO BE USED WHEN IT IS NECESSARY TO REMOVE THE GLASS USED IN THE HOT EXTRUSION PROCESS

OX 53 OXIDIZER
TRANSITION METAL STABILIZED HYDROGEN PEROXYDE 130 VV

CONDORITE 754
NITRIC AND HYDROFLUORIC ACID FREE PICKLING SOLUTION FOR AISI 400 SERIES OR FOR LIGHT OXYDE ELIMINATION FROM AISI 300 SERIE

LV 59 STABILIZER
HYDROGEN PEROXYDE STABILIZER IS USED TO REDUCE THE CONSUMPTION OF THE PRODUCT MAKING THE PROCESS MORE ECONOMICAL THAN THE TRADITIONAL ONE

NEW **DESCALINOX TPF**
NITRIC ACID FREE PICKLING PRODUCTS WITH VERY LOW PERCENTAGE OF HF MAKING THE CONCENTRATE PRODUCT OUTSIDE THE SEVESO DIRECTIVE (STORAGE LIMIT OF 50 TON)-

NEW **DESCALINOX FAST**
NITRIC ACID FREE PICKLING PRODUCTS WITH ADDITION OF SPECIAL ADDITIVES THAT GRANT A VERY FAST PROCESSING OF DIFFICULT MATERIALS SUCH AS DUPLEX AND SUPERDUPLEX (AVAILABLE ALSO IN TPF FORM)

PICKLING REACTIONS

Knowing the pickling reactions is important to manage the process and to understand the potential economic savings

ACIDIC DISSOLUTION: Me^0 (Fe, Cr, Ni) + H^+ → Me^{n+} + H_2

OXIDATIVE DISSOLUTION: Me^0 (Fe, Cr, Ni) + Fe^{3+} → Me^{n+} + Fe^{2+}

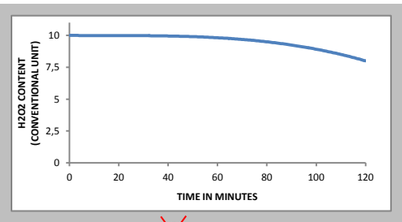
REGENERATIVE REACTIONS: Fe^{2+} + H_2O_2 → Fe^{3+}

COMPLEXATION REACTIONS: Fe^{3+} (Cr^{3+}) + F^- → FeF_6^{3-} ($Cr F_6^{3-}$)

Note: Bivalent iron does not form any complex with fluoride

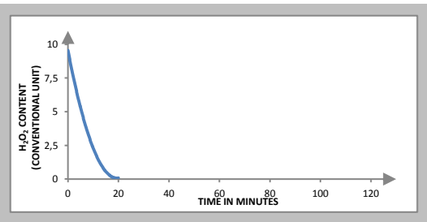
STABILIZER

stabilizes the hydrogen peroxyde, avoiding its decomposition caused by presence of metals at high temperature and giving more power to the solution by activating the peroxide



H_2O_2 (ΔT+Fe) -~~→~~ H_2O + O_2

WITH STABILIZER



H_2O_2 (ΔT+Fe) -→ H_2O + O_2

WITHOUT STABILIZER

RELATED PRODUCTS

TI 80: NITRIC AND HYDROFLUORIC ACID FREE PICKLING SOLUTION FOR TITANIUM AND TITANIUM ALLOYS

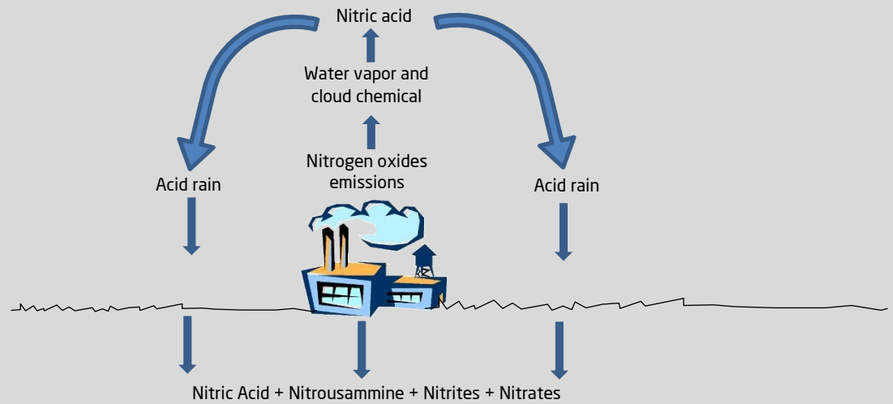
TI 90: NITRIC ACID FREE PICKLING SOLUTION FOR TITANIUM AND TITANIUM ALLOYS

Ni 100: NITRIC AND HYDROFLUORIC ACID FREE PICKLING SOLUTION FOR NICKEL AND NICKEL ALLOYS

ZR 100: NITRIC AND HYDROFLUORIC ACID FREE PICKLING SOLUTION FOR ZIRCONIUM AND ALLOYS

CONDOROIL CHEMICAL, IN THE METAL SURFACE TREATMENT FOR OVER 40 YEARS, DESIGNS PRODUCTS TO SOLVE ENVIRONMENTAL ISSUES AND TO GRANT ECONOMIC ADVANTAGES.

ADVANTAGES 1 ENVIRONMENTALLY FRIENDLY

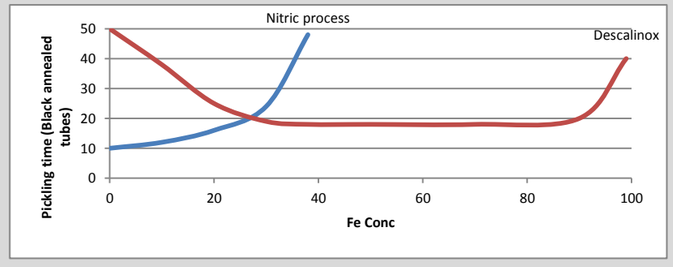


ADVANTAGES 2 REDUCED TOXICITY

- NO NITRIC ACID TO HANDLE AND NO NITRIC ACID IN THE PICKLING SOLUTIONS
- NO NITROGEN OXIDES EMISSION IN THE WORK SHOP AND ATMOSPHERE
- REDUCED CONCENTRATION OF HYDROFLUORIC ACID IN THE PICKLING SOLUTION.
- HF IN TRADITIONAL BATHS = TOXIC LABEL
- HF IN DESCALINOX BATHS = NO LABEL
- REDUCED CONCENTRATION (TPF) OF HYDROFLUORIC ACID IN THE CONCENTRATE PRODUCT (NO SEVESO DIRECTIVE)

ADVANTAGES 3 COST REDUCTION

- HF CONSUMPTION REDUCED BY 3 TIMES
- BATH LIFE INCREASED BY 4 TIMES
- METAL CONSUMPTION REDUCED
- WASTE METAL HYDROXIDES REDUCED
- SULPHURIC ACID CHEAPER THAN NITRIC ACID
- NO MORE NEED OF NITROGEN OXIDES EXHAUST SYSTEM
- MORE CONSTANT PROCESS IN TERMS OF PICKLING TIME (THE BATH IS CONSTANT FROM 25 TO 90 G/L OF IRON WHILE NITRIC ACID SOLUTION ACTIVITY DROPS COSTANTLY TILL THE LIMIT OF 40 G/L OF IRON)
- REDUCTION OF PICKLING TIMES FOR DUPLEX, SUPERDUPLEX, ETC (FAST) TO DEAL WITH A PRODUCTION GROWTH WITHOUT MODIFYING THE PICKLING PLANT



CORRELATED DOCUMENTS BY CONDOROIL

TURN KEY TUBES AND PIPES **PICKLING PLANTS**
IN LINE ELECTROLYTIC TUBE PICKLING PLANTS
ELECTROLYTIC PICKLING PLANTS FOR ANNEALED BANDS
RESIBED: ACID RETARDATION UNIT FOR PICKLING SOLUTION REGENERATION
PEROXYSTEEL: CATALYTIC OXIDATION UNIT FOR THE REGENERATION OF THE TRIVALENT IRON IN NITRIC FREE PROCESS OR THE NOx EMISSION REDUCTION
CONDORDEPUR: WASTE WATER TREATMENT CHEMICALS AND TECHNOLOGIES