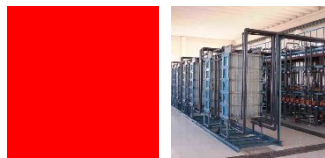




DIFFUSION DIALYSIS
FOR THE REGENERATION OF
PICKLING BATHS
DYAD

WITH AN ATTENTIVE EYE
TO NATURE





DIFFUSION DIALYSIS FOR THE REGENERATION OF PICKLING BATHS DYAD SERIES

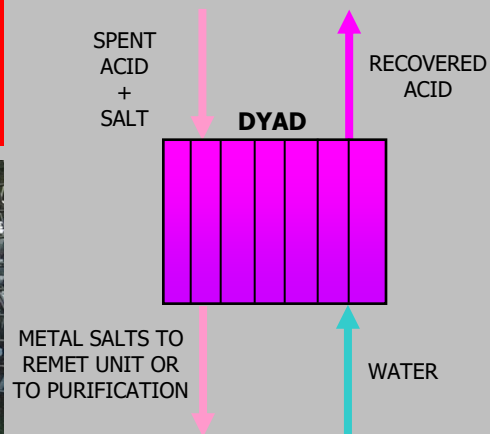
APPLICATIONS

THE DIFFUSION DIALYSIS IS A MEMBRANE SEPARATION PROCESS THAT EXPLOITS THE NATURAL DIFFUSION OF AN ION FROM A HIGH CONCENTRATION AREA TO A LOWER CONCENTRATION ONE, THROUGH A SEMI-PERMEABLE MEMBRANE. THE MEMBRANE, MADE OF FUNCTIONAL POLYMER MATERIAL, ALLOWS THE PASSAGE OF ANIONS AND THE HYDROGEN ION, AND THEREFORE, DEFINITELY, OF FREE ACIDS, WHILE PREVENTING THE PASSAGE OF SALTS. IN THIS WAY IT IS POSSIBLE TO SEPARATE THE FREE ACIDS FROM THE CORRESPONDING SALTS OF THE DISSOLVED METALS DURING THE PICKLING PROCESS.

NO CHEMICAL REAGENTS ARE REQUIRED AND ENERGY CONSUMPTION IS CLOSE TO ZERO SINCE IT IS ONLY NECESSARY TO OPERATE MODEST CAPACITY PUMPS.

THIS TECHNIQUE ALLOWS TO KEEP THE WORKING BATH AT A CONSTANT METAL CONTENT, AVOIDING THE DISCHARGE AND PURIFICATION OF THE PRESENT FREE ACIDS, WHICH ARE RECOVERED.

HOW IT WORKS



THE PLANT HAS A MODULAR STRUCTURE AND IT IS MADE OF A SERIES OF DIALYSIS CELLS.

IT CAN BE EASILY CUSTOMIZED.

EACH CELL PROCESSES UP TO 250 L/DAY OF PICKLING SOLUTION, COLLECTING THE FREE ACID

THE PLANT IS AUTOMATICALLY MANAGED BY A PLC.

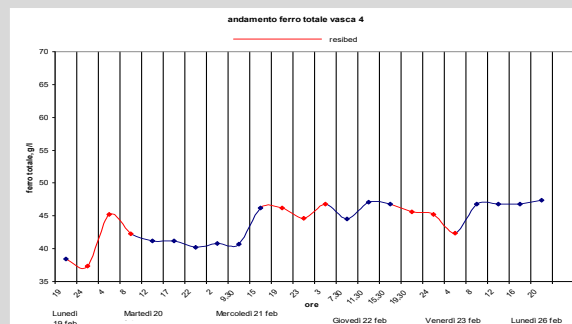
ADVANTAGES

PRODUCTION WISE

- COSTANT PICKLING ACTIVITY
- NO NEED OF TANK RENOVATION
- BETTER PICKLING QUALITY

COST WISE

- SAVING ON PICKLING PRODUCT
- SAVING ON SLUDGE AND SOLUTION WASTE
- SAVING ON WORKING HOURS



MODELS

MODELS	PROCESS CAPACITY (l/gg)	INSTALLED POWER (Kw)	REAL CONSUMPTION (Kw)
DYAD 250	250	2,2	0,6
DYAD 500	500	4,4	0,6
DYAD 1000	1.000	8,8	0,9
DYAD 1500	1.500	13,2	0,9
DYAD 2000	2.000	17,6	1,2
DYAD 2500	2.500	22,0	1,2
DYAD 3000	3.000	26,4	1,5
DYAD 3500	3.500	30,8	1,5
DYAD 4000	4.000	35,2	1,8
DYAD 4500	4.500	39,6	1,8
DYAD 5000	5.000	44	2,0

PRETREATMENT

PRETREATMENT

TO AVOID CLOGGING THE NARROW CHANNELS THAT SEPARATE THE MEMBRANES FROM SLUDGE, THE UNITS ARE SUPPLIED WITH A CARTRIDGE FILTER ABLE TO ELIMINATE FINELY DISPERSED PARTICLES.

CLOGGED FILTERS MUST BE REPLACED WHEN REQUIRED BY THE CONTROL UNIT AND THE OPERATION IS CARRIED OUT SAFELY SINCE THE FILTER IS EQUIPPED WITH A WASHING CIRCUIT.

OPTIONS

AUTOMATIC TITRATOR

FOR HIGH PRODUCTIVITY PLANTS AND/OR 4.0 INDUSTRIES, WE PROPOSE AUTOMATIC TITRATOR ABLE TO CHECK AND RECORD ALL PROCESS DATAS, SUCH AS TEMPERATURE, REDOX, METAL CONCENTRATION, DIVALENT IRON (FOR NITRIC FREE PICKLING) AND FREE ACID. IT ALSO MANTAINS THESE LEVELS BY DOSING FRESH ACIDS AND ACTIONING THE RESIBED UNIT.



OXIDES RECOVERY UNIT

BY USING OUR OXYREC UNIT IS POSSIBLE TO RECOVER BOTH THE OXIDES AND THE PICKLING SOLUTIONS DRAINED BY THE SLUDGE SEPARATOR.



DECANTATION UNIT

A BIGGER DECANTATION UNIT MAY BE IMPLEMENTED IN CASE THE WHOLE PICKLING SOLUTION MUST BE KEPT CLEAN.

IN THIS CASE, THE PICKLING SOLUTION CONTINUOUSLY FEEDS THE DECANTATION UNIT AND ONLY A LIMITED PART OF THE LIQUID IS DIRECTED TO THE REGENERATION UNIT.



REMET UNIT

DYAD UNIT WASTE FLOW CAN BE FURTHERLY PROCESS BY OUR REMET ELECTRODIALYSIS UNIT WHICH IS ABLE TO SEPARATE DISSOLVED SALTS IN RECOVERABLE METAL AS SCRAPS AND ACIDS TO BE RECYCLED IN THE PICKLING PROCESS.

