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CABU MER 06-07



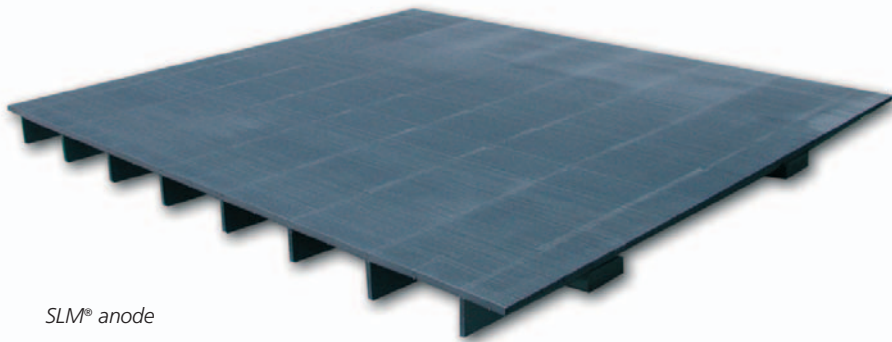
Mercury

Chlor-Alkali Business Unit

Power Consumption and Mercury Emissions reduction

De Nora is the industry leader in technology and efforts to keep the mercury process competitive by reducing power consumption - Energy Saving Program (ESP). This means that it is possible to obtain the technological limit of the anode ($K_{f_{CuHg}}$ 0.045 – 0.050 depending on cell size).

- This package includes following items:
1. SLM® anode
 2. New anode supporting single-line sub-frames
 3. New ACPD



SLM® anode

Project Mercury Zero developed by De Nora has achieved the outstanding result to keep mercury emissions below limit fixed by Authorities

Effluent	Hg content	
	Before treatment	After treatment
Brine sludges	up to salt	< 100 ppm (< 5 ppb eluate)
Waste graphite & carbons	200 g/Kg	< 100 ppm
Process water	10 ppm	< 5 ppb
Caustic	7 - 10 ppm	< 50 ppb (Funda) 50 - 100 ppb (Candle)
Hydrogen	20 - 50 mg/Nm³	< 5 µg/Nm³
Cell room air	no treatment	< 10 - 15 µg/Nm³
Process air	30 mg/Nm³	< 5 µg/Nm³

De Nora is leader in technology and efforts to reduce environmental impact of mercury cellrooms by minimizing emissions and improve cell-room safety - Project Mercury Zero (PMZ).

The Project Mercury Zero program is based on technology and procedures that will limit the number of times a cell must be opened for maintenance, reducing mercury emissions when a cell must be opened and designing long-life components with minimum mercury pick-up.

This package includes the following items:

1. Ecological package - new components designed with advanced engineering and alternative materials
 - Inlet and Outlet end-boxes
 - Sidewalls
 - Caustic vessel
2. Minimized cell openings for cleaning and ordinary maintenance
3. Process effluent demercurization treatment
 - solid (sludge; waste graphite & carbon)
 - liquid (waste water; caustic)
 - gas (hydrogen; vent air)

De Nora continues to invest in new advanced technology for mercury anodes. The Runner® technology had been the most advanced technology in the world.

Now introducing the SLM® anode — the best performing anode ever produced for an amalgam technology cell.

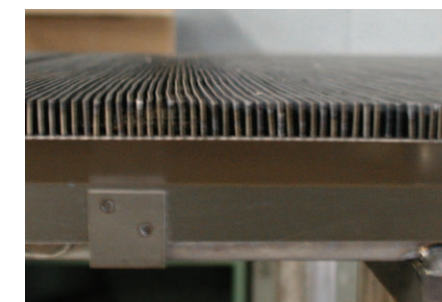
SLM® anode new grid characteristics (thin blade profile) and thermo-hydrodynamic baffles minimize bubble effect and renew electrolyte circulation even at high current density.



SLM® anode main structure

SLM® anode installation gives advantages such as:

- Stable operation at very low interelectrode gap (especially if installed with new single-line frames and new ACPD)
- Power consumption reduction while keeping a high and constant faradic efficiency
 - 0.030 Kf point lower than Rod anodes
 - 0.015 Kf point lower than Runner® anodes
- A minimum 0.025 – 0.030 Kf point (depending on existing conditions) if installed with new single-line frames and new ACPD
- Coating operating life up to 5 years (approximately 400 - 500 tCl²/sq.m of specific production) depending on cell operating conditions
- Higher resistance to short circuit which means lower number of repairs required
- Brine circuit cost reduction by reducing depleted brine concentration to 225 – 230 gpl



SLM® anode grid profile

Dimensionally Stable Anode

DSA® is a registered trademark of De Nora Companies.