



SCHEDULE OF PRICESSummary

<u>Item No.</u>		<u>Price</u>	
		<u>Canadian \$</u>	<u>DM</u>
1.	Total Design and Supply Price (Base Case)	-	12,373,462
2.	Erection Price	603,680	1,309,280
3.	Mandatory Spare Parts	-	824,447
4.	Commissioning Spare Parts	-	81,215
5.	Two Year Operation Spare Parts	-	1,234,907
8.	Performance Tests	-	227,850
10.	Credit for Owner Financing of Customs Duties and Broker's Fees	-	(23,000)
11.	Credit for Owner Supplied Insurance	-	(25,500)
	<b>CONTRACT PRICE</b>	<b>CAD \$ 603,680</b>	<b>DM 16,002,661</b>

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## TECHNICAL REQUISITION

NORSK HYDRO  
MONENCO-LGLSECTION 8.0  
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HCl SYNTHESIS PLANTPAGE 18  
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MG PLANT BECANCOUR

REV. 03

HCl SYNTHESIS PLANT

TABLE 8.1  
DESIGN CAPACITIES AND FLOW RATES

Design capacities flow rates and battery limit conditions for all raw materials and products are summarized below:

MG PRODUCTION MT/Y	60000		40000	DESIGN CAPACITY PER TRAIN
	DESIGN	NORMAL	NORMAL	
100% HCl Produced kg/h	25254	23199	16323	6313
t/d	606.1	556.8	391.7	151.5
32% HCl Produced kg/h	93279	85260	59516	23319
t/d	2238.7	2046.2	1428.4	559.6
No. of Operating Trains	4	4	3	1
No. of Spare Trains	1	1	1	-
Anode Gas				
Chlorine kg/h	24563	20064	13376	6140
Air kg/h	1293	1056	704	323
Temp Deg C Max	180	180	180	180
Pressure Bara	1.15	1.15	1.15	1.15
Make Up Chlorine				
Flow kg/h		2500	2500	
Pressure Bara		1.15	1.15	
Temp Deg C		25	25	
Hydrogen				
Flow Kg/h	828	756.5	531	207
Conc Vol%	99.5	99.5	99.5	99.5
Temp Deg C	25	25	25	25
Pressure Bara	1.2	1.2	1.2	1.2
Absorption Acid				
Flow kg/h	57440	51050	34030	14360
Conc wt %	8.0	8.0	8.0	8.0
Temp Deg C	50	50	50	50
Pressure Bara*	4.5	4.5	4.5	4.5
Absorption Water				
Flow kg/h	10580	11010	9163	2645
Temp Deg C	20	20	20	20
Pressure Bara*	4.0	4.0	4.0	4.0
Product Acid				
Flow kg/h	93279	85260	59516	23319
Conc wt %	32.0	32.0	32.0	32.0
Temp Deg C	42	42	42	42
Pressure Bara*	1.85	1.85	1.85	1.85
(at absorber outlet)				

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HCl SYNTHESIS PLANT

2.02 DESIGN SUMMARY (Cont'd)

A. Interface (Cont'd)

Cables will be TECK 90 for non-hazardous locations and TECK 90 HL for hazardous locations.

The following supplies will be available:

- 4.16 kV from Motor Control Center
- 600 V from Switchgear and Motor Control Center
- 600V/347V from Lighting Board
- 208V/120V from Auxiliary Board
- 120V DC from Battery System
- 120V, 60 Hz from Uninterruptible Power Supply Unit (UPS).

No other supplies will be available.

Power and associated control cables will be run on cable trays to the equipment by the Engineer.

All motors shall be grouped together in one location close to the exterior of the building. Cables and cable tray to these motors and their associated push button stations will be supplied and installed by the Engineer. All other instrument and control related cabling and cable trays within the battery limits shall be designed, supplied and installed by the Contractor. Instrument and Control cabling from DCS will be designed, supplied and routed on these cable trays up to the local panels and terminated by the Engineer, as will be the electrical power cables to the local panels.

B. Principal Characteristics

.1 General

The HCl plant shall be designed to meet the HCl requirement at a Magnesium production capacity of 60,000 tonnes/year but the installed capacity shall be equivalent to 40,000 tonnes/year Magnesium. The design and installed capacities for the two Magnesium production rates are:

	<u>Final Design</u>	<u>Initial Installation</u> (Normal)	<u>(Design)</u>
Mg Production t/y	60,000	40,000	40,000
100% HCl Production t/d	606.1	391.7	454.6
32% HCl Production t/d*	2238.7	1428.	1678.7
Number of Operating Trains	4	3	3
Number of Spare Trains	1	1	1

\* Including the 8 wt % HCl supplied by Owner.