

**Appendix 11A-1 PRODUCTION COST BY COST CENTER**

Appendix 11A-1 Production Cost by Cost Center [Summary]

(Unit : US\$ 1,000)

Department Cost Center Code	Production Department													Total	US\$/ton
	DRP P01	LCP P02	SMP P03	HSMP P04	SKL P05	PL P06	CSMP P07	APL P08	CGL P09	PPP					
Variable Co Total	108,249	900	57,088	5,108	-289	-810	-2,453	-2,469	5,934	171,258	184				
Materials	80,739	520	44,471	237	35	0	60	336	6,134	132,532	142				
By-products(▲)	0	0	-3,960	-825	-330	-825	-3,300	-3,630	-495	-13,365	-14				
Utility	27,257	376	16,418	4,954	6	14	666	775	267	50,734	54				
Auxiliary Department	253	3	159	742	0	0	121	50	28	1,357	1				
Fixed Costs Total	25,190	1,456	19,693	19,823	1,183	1,489	5,376	5,643	3,511	83,364	89				
Labor	220	79	612	333	93	55	200	214	73	1,880	2				
Repair	8,410	295	3,332	3,962	194	281	1,113	1,207	757	19,551	21				
Depreciation	14,257	897	10,712	11,971	737	995	3,470	3,580	2,419	49,036	53				
Auxiliary Department	2,304	185	5,037	3,558	159	157	594	641	262	12,897	14				
Total Costs	133,439	2,356	76,781	24,931	893	678	2,924	3,174	9,446	254,622	273				
US\$/ton	143	3	82	27	1	1	3	3	10	273	10				

## Appendix 11A-1 Production Cost by Cost Center (2)

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Direct Reduction Plant (DRP)		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			107,996
<b>Material Costs</b>			80,739
Lump ore	50.97 US\$/ton	300,000 ton	15,291
Oxide pellet	54.54 US\$/ton	1,200,000 ton	65,448
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			27,257
Electricity	0.020 US\$/kWh	130.0 GWh	2,600
Water	0.300 US\$/m3	1,500,000 m3	450
Natural Gas	0.084 US\$/Nm3	285,000,000 Nm3	23,940
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	6,075,000 Nm3	267
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			22,887
<b>Labor Costs</b>			220
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	1.00 person	8
Engineer & Specialist	4,700 US\$/person	8.00 person	38
Worker	2,500 US\$/person	64.00 person	160
Repair Costs			8,410
Depreciation			14,257
<b>Total Production Costs</b>			130,883

### Appendix 11A-1 Production Cost by Cost Center (3)

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Lime Calcining Plant (LGP)		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			896
<b>Material Costs</b>			520
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	80,000 ton	520
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			376
Electricity	0.020 US\$/kWh	2.0 GWh	40
Water	0.300 US\$/m3	1,000 m3	0
Natural Gas	0.084 US\$/Nm3	4,000,000 Nm3	336
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			1,271
<b>Labor Costs</b>			79
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	0.00 person	0
Assistant Section Manager	8,400 US\$/person	1.00 person	8
Engineer & Specialist	4,700 US\$/person	1.00 person	5
Worker	2,500 US\$/person	25.00 person	63
<b>Repair Costs</b>			295
<b>Depreciation</b>			897
<b>Total Production Costs</b>			2,167

## Appendix 11A-1 Production Cost by Cost Center (4)

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Steelmaking Plant (SMP)		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			<b>56,929</b>
<b>Material Costs</b>			<b>44,471</b>
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	167,700 ton	27,671
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	53,100 ton	16,801
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & GGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	-24,000 ton	-3,960
<b>Other Variable Operating Costs</b>			<b>16,418</b>
Electricity	0.020 US\$/kWh	617.0 GWh	12,340
Water	0.300 US\$/m3	1,800,000 m3	540
Natural Gas	0.084 US\$/Nm3	4,000,000 Nm3	336
Oxygen Gas	0.088 US\$/Nm3	32,000,000 Nm3	2,816
Nitrogen Gas	0.044 US\$/Nm3	4,000,000 Nm3	176
Argon Gas	0.300 US\$/Nm3	700,000 Nm3	210
<b>Fixed Costs</b>			<b>14,656</b>
<b>Labor Costs</b>			<b>612</b>
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	2.00 person	17
Engineer & Specialist	4,700 US\$/person	3.00 person	14
Worker	2,500 US\$/person	227.00 person	568
<b>Repair Costs</b>			<b>3,332</b>
<b>Depreciation</b>			<b>10,712</b>
<b>Total Production Costs</b>			<b>71,585</b>

**Appendix 11A-1 Production Cost by Cost Center (5)**

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Hot Strip Mill Plant (HSMP)		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			<b>4,366</b>
<b>Material Costs</b>			<b>237</b>
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	368,000 ton	37
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	40 ton	200
(-) By-products (Scrap)	165.00 US\$/ton	-5,000 ton	-825
<b>Other Variable Operating Costs</b>			<b>4,954</b>
Electricity	0.020 US\$/kWh	100.0 GWh	2,000
Water	0.300 US\$/m3	2,069,000 m3	621
Natural Gas	0.084 US\$/Nm3	27,777,000 Nm3	2,333
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			<b>16,266</b>
<b>Labor Costs</b>			<b>333</b>
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	1.50 person	13
Engineer & Specialist	4,700 US\$/person	1.50 person	7
Worker	2,500 US\$/person	120.00 person	300
<b>Repair Costs</b>			<b>3,962</b>
<b>Depreciation</b>			<b>11,971</b>
<b>Total Production Costs</b>			<b>20,631</b>

### Appendix 11A-1 Production Cost by Cost Center (6)

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Skinpass Line		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			-289
<b>Material Costs</b>			35
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	173,000 ton	35
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	-2,000 ton	-330
<b>Other Variable Operating Costs</b>			6
Electricity	0.020 US\$/kWh	0.3 GWh	6
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			1,023
<b>Labor Costs</b>			93
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	0.00 person	0
Assistant Section Manager	8,400 US\$/person	0.50 person	4
Engineer & Specialist	4,700 US\$/person	0.50 person	2
Worker	2,500 US\$/person	33.00 person	83
<b>Repair Costs</b>			194
<b>Depreciation</b>			737
<b>Total Production Costs</b>			734

### Appendix 11A-1 Production Cost by Cost Center (7)

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Plate Line		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			-811
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & OGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	-5,000 ton	-825
<b>Other Variable Operating Costs</b>			14
Electricity	0.020 US\$/kWh	0.2 GWh	4
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	20,000 Nm3	2
Oxygen Gas	0.088 US\$/Nm3	100,000 Nm3	9
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			1,332
<b>Labor Costs</b>			55
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	0.00 person	0
Assistant Section Manager	8,400 US\$/person	0.50 person	4
Engineer & Specialist	4,700 US\$/person	0.50 person	2
Worker	2,500 US\$/person	18.00 person	45
<b>Repair Costs</b>			281
<b>Depreciation</b>			995
<b>Total Production Costs</b>			521



**Appendix 11A-1 Production Cost by Cost Center (8)**

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Cold Strip Mill Plant (CSMP)		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			<b>-2,574</b>
<b>Material Costs</b>			<b>60</b>
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	20,000 ton	60
Coil packing for APL & GGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	-20,000 ton	-3,300
<b>Other Variable Operating Costs</b>			<b>666</b>
Electricity	0.020 US\$/kWh	27.0 GWh	540
Water	0.300 US\$/m3	226,000 m3	68
Natural Gas	0.084 US\$/Nm3	678,000 Nm3	57
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	32,000 Nm3	1
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			<b>4,782</b>
<b>Labor Costs</b>			<b>200</b>
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	0.50 person	4
Engineer & Specialist	4,700 US\$/person	1.50 person	7
Worker	2,500 US\$/person	70.00 person	175
<b>Repair Costs</b>			<b>1,113</b>
<b>Depreciation</b>			<b>3,470</b>
<b>Total Production Costs</b>			<b>2,208</b>

## Appendix 11A-1 Production Cost by Cost Center (9)

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Annealing & Processing Line		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			-2,519
<b>Material Costs</b>			336
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory. etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & OGL	1.50 US\$/ton	224,000 ton	336
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	-22,000 ton	-3,630
<b>Other Variable Operating Costs</b>			775
Electricity	0.020 US\$/kWh	11.0 GWh	220
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	4,674,000 Nm3	393
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	3,690,000 Nm3	162
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			5,001
<b>Labor Costs</b>			214
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	0.00 person	0
Assistant Section Manager	8,400 US\$/person	1.00 person	8
Engineer & Specialist	4,700 US\$/person	1.00 person	5
Worker	2,500 US\$/person	79.00 person	198
<b>Repair Costs</b>			1,207
<b>Depreciation</b>			3,580
<b>Total Production Costs</b>			2,482

**Appendix 11A-1 Production Cost by Cost Center (10)**

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Hot-dip galvanizing Line (CGL)		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			<b>5,906</b>
<b>Material Costs</b>			<b>6,134</b>
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	71,000 ton	107
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	2,982 ton	5,964
Chromate liquid	3,000.00 US\$/ton	21 ton	64
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	-3,000 ton	-495
<b>Other Variable Operating Costs</b>			<b>267</b>
Electricity	0.020 US\$/kWh	3.2 GWh	64
Water	0.300 US\$/m3	71,000 m3	21
Natural Gas	0.084 US\$/Nm3	1,420,000 Nm3	119
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	1,420,000 Nm3	62
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			<b>3,249</b>
<b>Labor Costs</b>			<b>73</b>
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.11 person	2
Section Manager	9,900 US\$/person	0.00 person	0
Assistant Section Manager	8,400 US\$/person	0.00 person	0
Engineer & Specialist	4,700 US\$/person	1.00 person	5
Worker	2,500 US\$/person	26.00 person	65
<b>Repair Costs</b>			<b>757</b>
<b>Depreciation</b>			<b>2,419</b>
<b>Total Production Costs</b>			<b>9,155</b>

## Appendix 11A-1 Production Cost by Cost Center (11)

Production Cost (2007 Year)

Division /Department	Production Department		
Cost Center	Total of Production Department		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			169,901
<b>Material Costs</b>			132,532
Lump ore	50.97 US\$/ton	300,000 ton	15,291
Oxide pellet	54.54 US\$/ton	1,200,000 ton	65,448
Scrap	165.00 US\$/ton	167,700 ton	27,671
Limestone	6.50 US\$/ton	80,000 ton	520
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	53,100 ton	16,801
Hydrochloric acid	3.00 US\$/ton	20,000 ton	60
Coil packing for API & CGL	1.50 US\$/ton	295,000 ton	443
Coil packing for HSMF	0.10 US\$/ton	368,000 ton	37
Coil packing for SKL	0.20 US\$/ton	173,000 ton	35
Zinc ingot	2,000.00 US\$/ton	2,982 ton	5,964
Chromate liquid	3,000.00 US\$/ton	21 ton	64
Roll	5,000.00 US\$/ton	40 ton	200
(-) By-products (Scrap)	165.00 US\$/ton	-81,000 ton	-13,365
<b>Other Variable Operating Costs</b>			50,734
Electricity	0.020 US\$/kWh	890.7 GWh	17,814
Water	0.300 US\$/m3	5,667,000 m3	1,700
Natural Gas	0.084 US\$/Nm3	327,569,000 Nm3	27,516
Oxygen Gas	0.088 US\$/Nm3	32,100,000 Nm3	2,825
Nitrogen Gas	0.044 US\$/Nm3	15,217,000 Nm3	670
Argon Gas	0.300 US\$/Nm3	700,000 Nm3	210
<b>Fixed Costs</b>			70,467
<b>Labor Costs</b>			1,880
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.45 person	12
Department Manager	21,600 US\$/person	1.00 person	22
Section Manager	9,900 US\$/person	4.00 person	40
Assistant Section Manager	8,400 US\$/person	8.00 person	67
Engineer & Specialist	4,700 US\$/person	18.00 person	85
Worker	2,500 US\$/person	662.00 person	1,655
<b>Repair Costs</b>			19,551
<b>Depreciation</b>			49,036
<b>Total Production Costs</b>			240,368

## Appendix 11A-1 Production Cost by Cost Center (12)

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Electric Power		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			0
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			0
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			3,485
<b>Labor Costs</b>			66
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	1.00 person	8
Engineer & Specialist	4,700 US\$/person	3.00 person	14
Worker	2,500 US\$/person	12.00 person	30
Repair Costs			828
Depreciation			2,591
<b>Total Production Costs</b>			3,485

**Appendix 11A-1 Production Cost by Cost Center (13)**

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Water		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			<b>1,040</b>
<b>Material Costs</b>			<b>0</b>
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			<b>1,040</b>
Electricity	0.020 US\$/kWh	52.0 GWh	1,040
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			<b>3,797</b>
<b>Labor Costs</b>			<b>204</b>
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	0.50 person	5
Assistant Section Manager	8,400 US\$/person	1.00 person	8
Engineer & Specialist	4,700 US\$/person	2.00 person	9
Worker	2,500 US\$/person	71.00 person	178
<b>Repair Costs</b>			<b>885</b>
<b>Depreciation</b>			<b>2,707</b>
<b>Total Production Costs</b>			<b>4,837</b>

## Appendix 11A-1 Production Cost by Cost Center (14)

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Natural Gas		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			0
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & OGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			0
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			106
<b>Labor Costs</b>			29
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	0.10 person	1
Assistant Section Manager	8,400 US\$/person	0.40 person	3
Engineer & Specialist	4,700 US\$/person	0.40 person	2
Worker	2,500 US\$/person	7.40 person	19
<b>Repair Costs</b>			21
<b>Depreciation</b>			57
<b>Total Production Costs</b>			106

## Appendix 11A-1 Production Cost by Cost Center (15)

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Plant Air		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			200
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrodes, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			200
Electricity	0.020 US\$/kWh	10.0 GWh	200
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			275
<b>Labor Costs</b>			39
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	0.10 person	1
Assistant Section Manager	8,400 US\$/person	0.40 person	3
Engineer & Specialist	4,700 US\$/person	0.40 person	2
Worker	2,500 US\$/person	11.40 person	29
<b>Repair Costs</b>			61
<b>Depreciation</b>			176
<b>Total Production Costs</b>			475



## Appendix 11A-1 Production Cost by Cost Center (16)

Production Cost (2007 Year)

Division / Department	Auxiliary Department		
Cost Center	Oxygen/Nitrogen/Argon Gas		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			0
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			0
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			29
<b>Labor Costs</b>			29
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	0.10 person	1
Assistant Section Manager	8,400 US\$/person	0.40 person	3
Engineer & Specialist	4,700 US\$/person	0.40 person	2
Worker	2,500 US\$/person	7.40 person	19
Repair Costs			0
Depreciation			0
<b>Total Production Costs</b>			29

## Appendix 11A-1 Production Cost by Cost Center (17)

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Hydrogen Gas		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			24
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			24
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	2,000 m3	1
Natural Gas	0.084 US\$/Nm3	280,000 Nm3	24
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			201
<b>Labor Costs</b>			29
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	0.10 person	1
Assistant Section Manager	8,400 US\$/person	0.40 person	3
Engineer & Specialist	4,700 US\$/person	0.40 person	2
Worker	2,500 US\$/person	7.40 person	19
<b>Repair Costs</b>			46
<b>Depreciation</b>			127
<b>Total Production Costs</b>			225

**Appendix 11A-1 Production Cost by Cost Center (18)**

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Steam		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			<b>93</b>
<b>Material Costs</b>			<b>0</b>
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			<b>93</b>
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	15,000 m3	5
Natural Gas	0.084 US\$/Nm3	1,052,000 Nm3	88
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			<b>64</b>
<b>Labor Costs</b>			<b>29</b>
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	0.10 person	1
Assistant Section Manager	8,400 US\$/person	0.40 person	3
Engineer & Specialist	4,700 US\$/person	0.40 person	2
Worker	2,500 US\$/person	7.40 person	19
<b>Repair Costs</b>			<b>9</b>
<b>Depreciation</b>			<b>26</b>
<b>Total Production Costs</b>			<b>156</b>

**Appendix 11A-1 Production Cost by Cost Center (19)**

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	In-works Transportation		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			0
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			0
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			2,474
<b>Labor Costs</b>			239
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.67 person	14
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	2.00 person	17
Engineer & Specialist	4,700 US\$/person	10.00 person	47
Worker	2,500 US\$/person	60.00 person	150
<b>Repair Costs</b>			273
<b>Depreciation</b>			1,962
<b>Total Production Costs</b>			2,474

**Appendix 11A-1 Production Cost by Cost Center (20)**

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Analysis & Inspection		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			0
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & OGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			0
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			742
<b>Labor Costs</b>			163
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.67 person	14
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	1.00 person	8
Engineer & Specialist	4,700 US\$/person	2.00 person	9
Worker	2,500 US\$/person	48.00 person	120
<b>Repair Costs</b>			159
<b>Depreciation</b>			419
<b>Total Production Costs</b>			742

## Appendix 11A-1 Production Cost by Cost Center (21)

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Maintenance Shop		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			0
<b>Material Costs</b>			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			0
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			873
<b>Labor Costs</b>			673
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.13 person	3
Section Manager	9,900 US\$/person	1.00 person	10
Assistant Section Manager	8,400 US\$/person	6.00 person	50
Engineer & Specialist	4,700 US\$/person	22.00 person	103
Worker	2,500 US\$/person	202.00 person	505
Repair Costs			22
Depreciation			178
<b>Total Production Costs</b>			873

## Appendix 11A-1 Production Cost by Cost Center (22)

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Plant Administration		
	Unit Cost	Requirement	Amount (1,000 US\$)
Variable Costs			0
Material Costs			0
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si. Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & GGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
Other Variable Operating Costs			0
Electricity	0.020 US\$/kWh	0.0 GWh	0
Water	0.300 US\$/m3	0 m3	0
Natural Gas	0.084 US\$/Nm3	0 Nm3	0
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
Fixed Costs			850
Labor Costs			785
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.05 person	1
Department Manager	21,600 US\$/person	0.67 person	14
Section Manager	9,900 US\$/person	5.00 person	50
Assistant Section Manager	8,400 US\$/person	14.00 person	118
Engineer & Specialist	4,700 US\$/person	59.00 person	277
Worker	2,500 US\$/person	130.00 person	325
Repair Costs			0
Depreciation			65
Total Production Costs			850

**Appendix 11A-1 Production Cost by Cost Center (23)**

Production Cost (2007 Year)

Division /Department	Auxiliary Department		
Cost Center	Total of Auxiliary Department		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			<b>1,357</b>
<b>Material Costs</b>			<b>0</b>
Lump ore	50.97 US\$/ton	0 ton	0
Oxide pellet	54.54 US\$/ton	0 ton	0
Scrap	165.00 US\$/ton	0 ton	0
Limestone	6.50 US\$/ton	0 ton	0
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	0 ton	0
Hydrochloric acid	3.00 US\$/ton	0 ton	0
Coil packing for APL & CGL	1.50 US\$/ton	0 ton	0
Coil packing for HSMP	0.10 US\$/ton	0 ton	0
Coil packing for SKL	0.20 US\$/ton	0 ton	0
Zinc ingot	2,000.00 US\$/ton	0 ton	0
Chromate liquid	3,000.00 US\$/ton	0 ton	0
Roll	5,000.00 US\$/ton	0 ton	0
(-) By-products (Scrap)	165.00 US\$/ton	0 ton	0
<b>Other Variable Operating Costs</b>			<b>1,357</b>
Electricity	0.020 US\$/kWh	62.0 GWh	1,240
Water	0.300 US\$/m3	17,000 m3	5
Natural Gas	0.084 US\$/Nm3	1,332,000 Nm3	112
Oxygen Gas	0.088 US\$/Nm3	0 Nm3	0
Nitrogen Gas	0.044 US\$/Nm3	0 Nm3	0
Argon Gas	0.300 US\$/Nm3	0 Nm3	0
<b>Fixed Costs</b>			<b>12,897</b>
<b>Labor Costs</b>			<b>2,285</b>
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	0.55 person	15
Department Manager	21,600 US\$/person	3.00 person	65
Section Manager	9,900 US\$/person	10.00 person	99
Assistant Section Manager	8,400 US\$/person	27.00 person	227
Engineer & Specialist	4,700 US\$/person	100.00 person	470
Worker	2,500 US\$/person	564.00 person	1,410
<b>Repair Costs</b>			<b>2,304</b>
<b>Depreciation</b>			<b>8,308</b>
<b>Total Production Costs</b>			<b>14,254</b>



## Appendix 11A-1 Production Cost by Cost Center (24)

Production Cost (2007 Year)

Division /Department	Production Division		
Cost Center	Total of Production Division		
	Unit Cost	Requirement	Amount (1,000 US\$)
<b>Variable Costs</b>			171,811
<b>Material Costs</b>			132,532
Lump ore	50.97 US\$/ton	300,000 ton	15,291
Oxide pellet	54.54 US\$/ton	1,200,000 ton	65,448
Scrap	165.00 US\$/ton	167,700 ton	27,671
Limestone	6.50 US\$/ton	80,000 ton	520
Graphite electrode, Fe-Mn, Fe-Si, Refractory, etc.	316.40 US\$/ton	53,100 ton	16,801
Hydrochloric acid	3.00 US\$/ton	20,000 ton	60
Coil packing for APL & CGL	1.50 US\$/ton	295,000 ton	443
Coil packing for HSMP	0.10 US\$/ton	368,000 ton	37
Coil packing for SKL	0.20 US\$/ton	173,000 ton	35
Zinc ingot	2,000.00 US\$/ton	2,982 ton	5,964
Chromate liquid	3,000.00 US\$/ton	21 ton	64
Roll	5,000.00 US\$/ton	40 ton	200
(-) By-products (Scrap)	165.00 US\$/ton	-81,000 ton	-13,365
<b>Other Variable Operating Costs</b>			52,644
Electricity	0.020 US\$/kWh	952.7 GWh	19,054
Water	0.300 US\$/m3	5,684,000 m3	1,705
Natural Gas	0.084 US\$/Nm3	328,881,000 Nm3	27,626
Oxygen Gas	0.088 US\$/Nm3	32,000,000 Nm3	2,816
Nitrogen Gas	0.044 US\$/Nm3	28,022,000 Nm3	1,233
Argon Gas	0.300 US\$/Nm3	700,000 Nm3	210
<b>Fixed Costs</b>			83,364
<b>Labor Costs</b>			4,165
General Manager	31,500 US\$/person	0.00 person	0
Deputy General Manager	26,600 US\$/person	1.00 person	27
Department Manager	21,600 US\$/person	4.00 person	86
Section Manager	9,900 US\$/person	14.00 person	139
Assistant Section Manager	8,400 US\$/person	35.00 person	294
Engineer & Specialist	4,700 US\$/person	118.00 person	555
Worker	2,500 US\$/person	1,226.00 person	3,065
Repair Costs			21,855
Depreciation			57,343
<b>Total Production Costs</b>			255,175

**Appendix 12A-1 SALES PRICE ESTIMATIONS**

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## Appendix 12A-1 SALES PRICE ESTIMATION

The Study Team estimated the sales price in Egypt based on World Steel Dynamics Report, Metal Bulletin data, and data and information which were obtained from CAPMAS statistical data base and steel consumers during the field surveys in Egypt .

### 1. ESTIMATION FROM WORLD STEEL DYNAMICS REPORT AND METAL BULLETIN DATA

The Study team estimated the sales price based on the data and information as shown in Table 12A-1-1, Figure 12A-1-1 and Figure 12A-1-2. These data and information show spot FOB sales price of commercial grade in Europe. The sales price in Egypt can be estimated by adding shipping fee, insurance, import tax, etc. Although present import tax is 20%, according to the information from the authorities, it is estimated that future import tax will be reduced to 10%.

Table 12A-1-1 Average Spot Sales Price in Europe

(Unit:US\$/ton-Average)

Products	World Steel Dynamics data (Antwerp spot price) (1981-1997)	Metal Bulletin data (Outside Europe FOB) (1995-1997)
Hot rolled coil	330	322
Plate	-	459
Cold rolled coil	430	431
Galvanized coil	-	553

Source : World Steel Dynamics, Metal Bulletin

Shipping charge to Egypt	: 30 US\$/t
Insurance, Bank charge Commissions,	: 15 US\$/t
Custom clearance and unloading fee	
Future import tax	: 10 %

Estimated sales prices in Egypt based on World Steel Dynamics are calculated as follows ;

Hot rolled coil                       $330+30+15+33=408$  US\$/t  
 Cold rolled coil                       $430+30+15+43=518$  US\$/t

Estimated sales prices in Egypt based on Metal Bulletin data are calculated as follows ;

Hot rolled coil                       $322+30+15+32=399$  US\$/t  
 Plate                                       $459+30+15+46=550$  US\$/t  
 Cold rolled coil                       $431+30+15+43=519$  US\$/t  
 Galvanized coil                       $553+30+15+55=653$  US\$/t

## 2. ESTIMATED PRICE BASED ON ACTUAL MARKET IN EGYPT

Price data obtained during the field surveys are summarized in Table 12A-1-2. Prices of products are US\$ 320-600 per ton of hot rolled products and US\$ 500-1200 per ton of cold rolled products. In these price ranges, low price products are of low quality and low grade steel from EISCO and Russia. High price products are of high quality and high grade steel from Europe and Japan. The new flat product plant will produced high quality and commercial grade steel, and prices will be US\$ 400-500 per ton of hot rolled products and US\$ 500-600 per ton of cold rolled products. (Refer to Appendix 3A-1-2)

Table 12A-1-2 Estimated Price from Actual Market in Egypt

Unit : US\$/ton

Steel grade	Hot rolled coil & plate	Cold rolled coil	Galvanized coil
All steel grade	320-600	500-1200	780

## 3. ESTIMATION FROM CAPMAS DATA

Unit price (= Sales price) are calculated by dividing total value by total quantity in CAPMAS statistical data as shown in Table 12A-1-3.

Table 12A-1-3 Unit Price of Imported Flat Products in Egypt

	Total value	Total quantity	Unit price
Hot rolled coil	US\$ 129,326,750	290,517 ton	445 US\$
Cold rolled coil	US\$ 95,015,339	179,354 ton	530 US\$

Source : CAPMAS Statistical Data, 1996

#### 4. PRICE DATA COMPARISON AND ESTIMATION

Estimated sales price of the new flat product plant are made based on the comparison of above data by as shown in Table 12A-1-4.

Table 12A-1-4 Estimated Sales Price in Egypt

(Unit : US\$/ton)

	World Steel Dynamics Report	Metal Bulletin data	Estimation from actual market price	CAPMAS statistical data	Estimated sales price
Hot rolled coil	408	399	400-500	445	410
Skinpassed coil	-	-	400-500	445	430
Plate	-	550	400-500	445	500
Cold rolled coil	518	519	500-600	530	530
Galvanized coil	-	653	780	-	680

#### 5. Conclusion

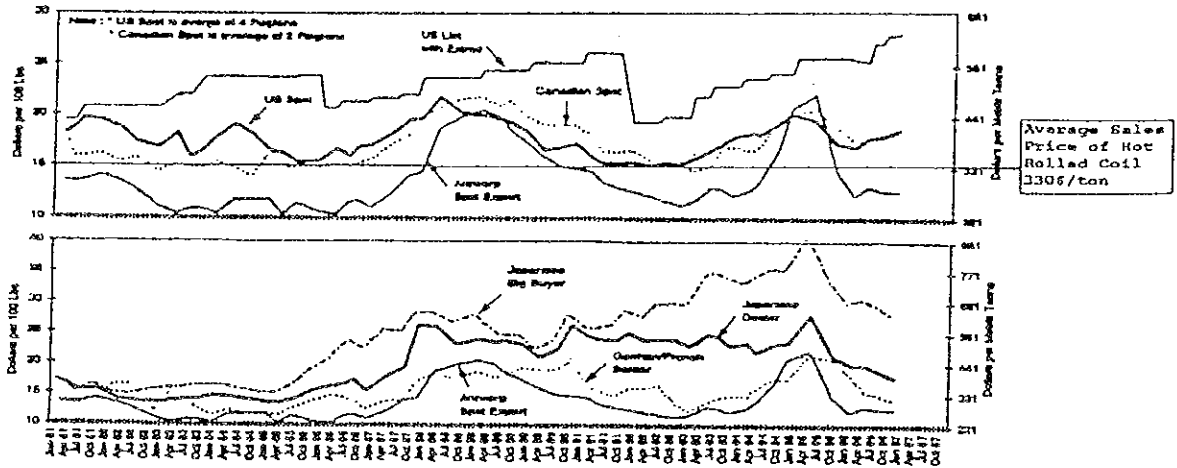
- 1) Hot rolled coil sales price will be us\$410 per ton
- 2) Skinpassed coil sales price will be us\$20 per ton higher than that of hot rolled coil due to high quality.
- 3) Plate sales price will be us\$500 per ton
- 4) Cold rolled coil sales price is us\$100-150 per ton higher than that of hot rolled coil and estimated sales price will be us\$530 per ton
- 5) Galvanized coil sales price is us\$100-200 per ton higher than that of cold rolled coil and estimated sales price in Egypt will be us\$680 per ton

Figure 12A-1-1 Sales Price Data from World Steel Dynamics

PaineWebber

# WORLD STEEL DYNAMICS

*Exhibit 43*  
WSD PriceTrack history: Hot-rolled coil  
( $\$$  per metric tonne)



*Exhibit 44*  
WSD PriceTrack history: Cold-rolled coil  
( $\$$  per metric tonne)

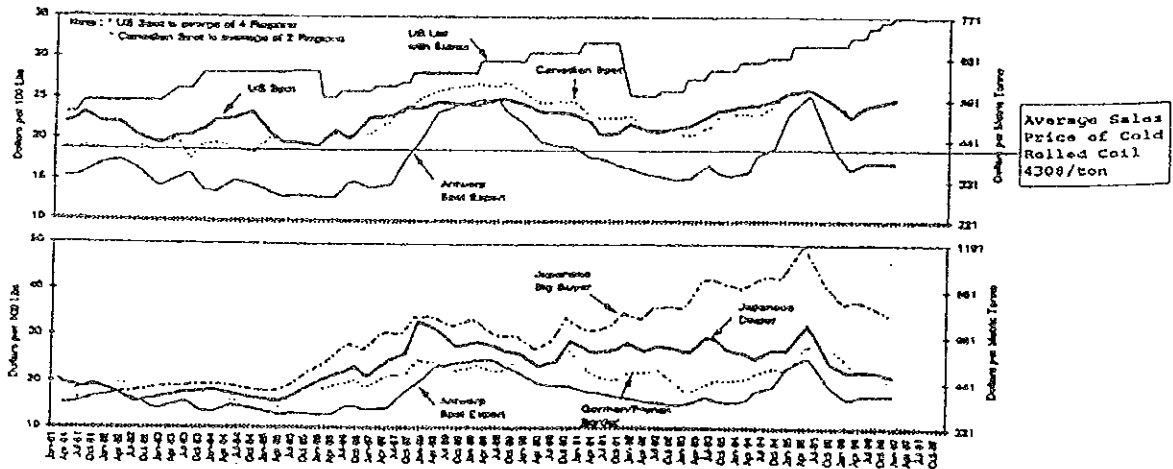
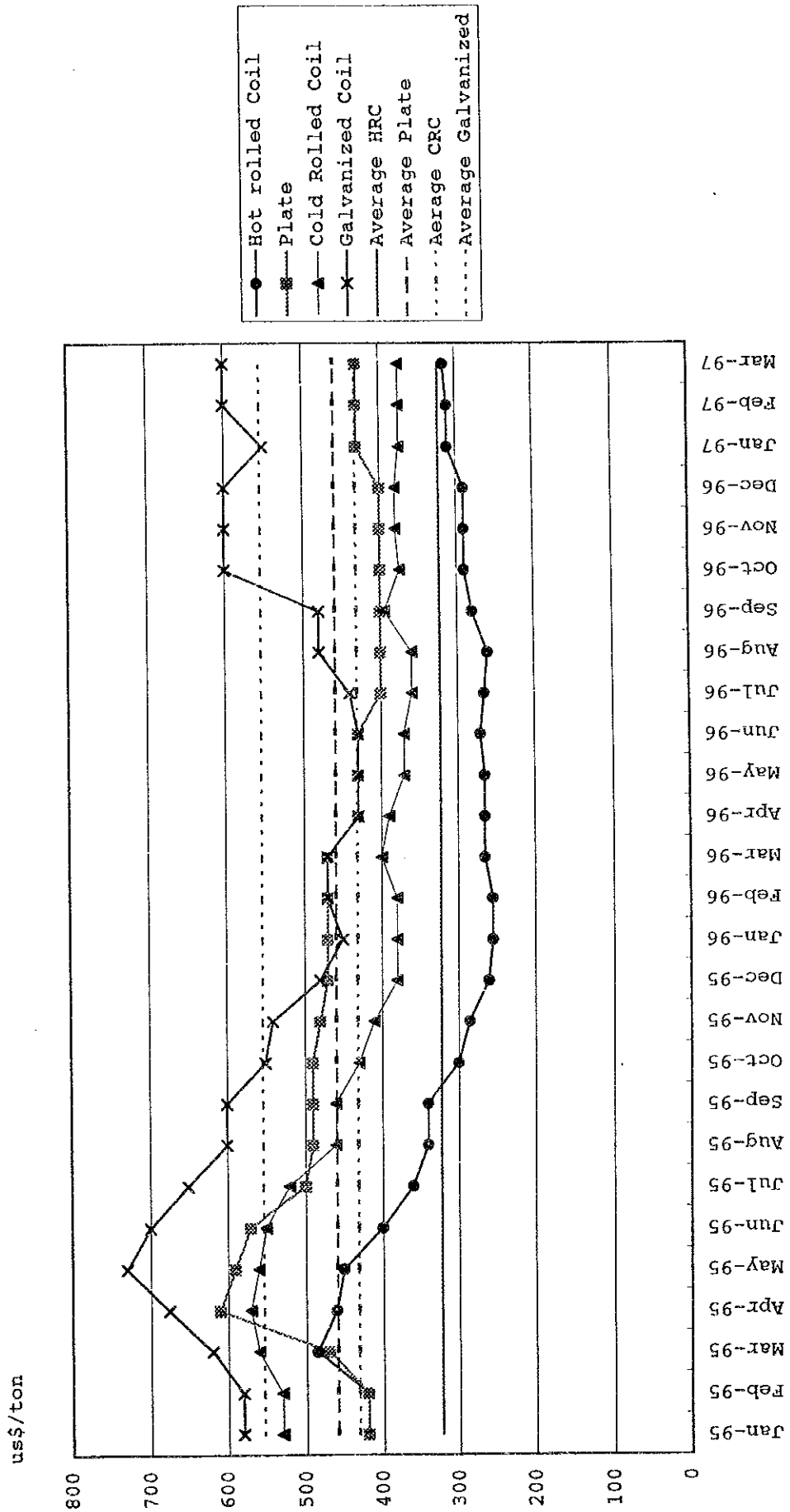


Figure 12A-1-2 Sales Price Data from Metal Bulletin







**Appendix 12A-2 THE DISCOUNT CASH FLOW TABLE FOR IRR**

Appendix 12A-2 The Discount Cash Flow Table for IRR

(Unit: 1,000 US\$)

<ROI (IRR on Total Investment) before Tax>		-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Flows from Operating Activities		0	0	0	0	-11,400	76,047	213,425	223,778	241,113	241,113	241,113	241,113	241,113	241,113	241,113	241,113	241,113	241,113	241,113	280,440
EBIT (Earnings before Interest & Tax)		0	0	0	0	0	21,210	143,070	147,570	164,670	164,670	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735
Depreciation		0	0	0	0	0	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378
Amortization		0	0	0	0	0	19,065	19,065	19,065	19,065	19,065	0	0	0	0	0	0	0	0	0	0
Changes in Inventories		0	0	0	0	-11,400	-21,605	-6,088	-235	0	0	0	0	0	0	0	0	0	0	0	39,328
Cash Flows from Investing Activities		-3,157	-21,712	-308,882	-547,500	-216,099	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	158,045
Changes in Fixed Assets		-2,832	-20,927	-306,614	-525,178	-146,475	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	158,045
Changes in Deferred Assets		-325	-785	-2,268	-22,322	-69,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash Flows		-3,157	-21,712	-308,882	-547,500	-227,499	76,047	213,425	223,778	241,113	241,113	232,768	241,113	241,113	241,113	241,113	232,768	241,113	241,113	241,113	438,485

ROI before Tax = 14.39%

(Unit: 1,000 US\$)

<ROI (IRR on Total Investment) after Tax>		-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Flows from Operating Activities		0	0	0	0	-11,400	70,084	213,425	223,778	233,446	233,446	233,446	185,636	183,805	181,974	180,143	185,979	184,148	182,317	182,317	221,645
EBIT (Earnings before Interest & Tax)		0	0	0	0	0	21,210	143,070	147,570	164,670	164,670	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735	183,735
Tax Provision		0	0	0	0	0	-5,963	0	0	-7,666	-7,666	-7,666	-55,477	-57,307	-59,138	-60,969	-55,133	-56,964	-58,795	-58,795	-58,795
Depreciation		0	0	0	0	0	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378
Amortization		0	0	0	0	0	19,065	19,065	19,065	19,065	19,065	0	0	0	0	0	0	0	0	0	0
Changes in Inventories		0	0	0	0	-11,400	-21,605	-6,088	-235	0	0	0	0	0	0	0	0	0	0	0	39,328
Cash Flows from Investing Activities		-3,157	-21,712	-308,882	-547,500	-216,099	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	158,045
Changes in Fixed Assets		-2,832	-20,927	-306,614	-525,178	-146,475	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	158,045
Changes in Deferred Assets		-325	-785	-2,268	-22,322	-69,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash Flows		-3,157	-21,712	-308,882	-547,500	-227,499	70,084	213,425	223,778	233,446	233,446	225,102	185,636	183,805	181,974	180,143	177,635	184,148	182,317	182,317	379,690

ROI after Tax = 12.60%

(Unit: 1,000 US\$)

<ROE (IRR on Equity)>		-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Flows from Operating Activities		0	0	0	0	-11,400	12,871	156,212	172,286	187,676	193,397	199,118	157,029	160,920	164,810	168,701	180,258	184,148	182,317	182,317	221,645
Net Income after Tax		0	0	0	0	0	-41,966	85,857	96,078	111,233	116,954	141,740	99,651	103,542	107,432	111,323	122,880	126,770	124,939	124,939	124,939
Depreciation		0	0	0	0	0	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378
Amortization		0	0	0	0	0	19,065	19,065	19,065	19,065	19,065	0	0	0	0	0	0	0	0	0	0
Changes in Inventories		0	0	0	0	-11,400	-21,605	-6,088	-235	0	0	0	0	0	0	0	0	0	0	0	39,328
Cash Flows from Investing Activities		-3,157	-21,712	-308,882	-547,500	-216,099	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	158,045
Changes in Fixed Assets		-2,832	-20,927	-306,614	-525,178	-146,475	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	158,045
Changes in Deferred Assets		-325	-785	-2,268	-22,322	-69,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Flows from Financing Activities		1,578	10,856	212,824	451,442	140,630	0	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	0	0	0	0
Proceeds from Long-term Debt		1,578	10,856	212,824	451,442	140,630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment of Long-term Debt		0	0	0	0	0	0	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	0	0	0	0
Net Cash Flows		-1,578	-10,856	-96,058	-96,058	-86,869	12,871	74,479	90,553	105,942	111,664	109,041	75,296	79,187	83,077	86,968	90,180	184,148	182,317	182,317	379,690

ROE = 21.75%

**Appendix 12A-3 DATA ON FIGURES FOR SENSITIVITY ANALYSIS**

Appendix 12A-3 Data on Figures for Sensitivity Analysis

Change Rate	-10	-8	-6	-4	-2	0	2	4	6	8	10
ROI by Changes in Capital Investment Cost	16.10	15.74	15.39	15.05	14.71	14.39	14.08	13.78	13.48	13.19	12.91
ROI by Changes in Production Volume	13.21	13.47	13.71	13.95	14.18	14.39	14.60	14.80	15.00	15.18	15.36
ROI by Changes in Production Cost	15.51	15.29	15.07	14.85	14.62	14.39	14.16	13.93	13.70	13.47	13.23
ROI by Changes in Sales Price	11.37	12.00	12.62	13.22	13.81	14.39	14.96	15.52	16.07	16.61	17.15

Inflation rate	-5	-4	-3	-2	-1	0	1	2	3	4	5
ROI by Changes in Inflation Rate	5.82	7.87	9.69	11.37	12.93	14.39	15.79	17.12	18.40	19.63	20.83

Interest Rate	3	5	7	9	11	13	15	17
ROE by Changes in Financing Cost	26.70	24.25	21.75	19.23	16.73	14.29	11.94	9.72

**Appendix 12A-4 FINANCIAL ANALYSIS ON 20% EXPORT BASIS**

Table 12A-4-4 Summary of Profit and Loss (20 % Export Case)

	1 2005		2 2006		3 2007		4 2008		5 2009		10 2014		15 2019	
	(Unit)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)	(1,000 US\$)	(US\$/ton)
Sales Volume for Domestic Market for Exports		(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)	(ton)
		535,708	917,417	733,933	183,483	933,000	746,400	186,600	933,000	746,400	186,600	933,000	746,400	186,600
Sales for Domestic Market for Exports		242,909	416,265	350,896	65,369	423,343	356,863	66,480	423,343	356,863	66,480	423,343	356,863	66,480
Cost of Sales		181,979	252,305	184	275	255,175	184	273	255,175	184	273	255,175	184	273
Variable Costs		98,615	168,942	184	184	171,811	184	184	171,811	184	184	171,811	184	184
Fixed Costs		83,364	83,364	91	91	83,364	89	89	83,364	89	89	83,364	89	89
Gross Profit		60,930	163,960	179	179	168,168	180	180	168,168	180	180	168,168	180	180
General & Administrative Expenses		49,726	38,026	41	41	38,026	41	41	20,926	22	22	1,861	2	2
Operating Income		11,205	125,934	137	137	130,143	139	139	147,243	158	158	166,308	178	178
Non-operating Expenses		57,213	57,213	62	62	51,492	55	55	40,049	43	43	11,443	12	12
Net Income before Taxes		-46,008	68,721	75	75	78,651	84	84	107,193	115	115	154,865	166	166
Net Income after Taxes		-51,971	68,721	75	75	78,651	84	84	99,527	107	107	113,089	121	121
Net Profit Margin		-21.4	16.5	18.6	22.2	23.5	23.5	26.7	23.5	23.5	23.5	23.5	23.5	26.7





Table 12A-4-6 The Discount Cash Flow Table for IRR (20 % Export Case)

<ROI (IRR on Total Investment) before Tax> (Unit: 1,000 US\$)

	-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Cash Flows from Operating Activities	0	0	0	0	-11,400	66,042	196,289	206,351	223,686	223,686	223,686	223,686	223,686	223,686	223,686	223,686	223,686	223,686	223,686	223,686	263,013
EBIT (Earnings before Interest & Tax)	0	0	0	0	0	11,205	125,934	130,143	147,243	147,243	166,308	166,308	166,308	166,308	166,308	166,308	166,308	166,308	166,308	166,308	166,308
Depreciation	0	0	0	0	0	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378
Amortization	0	0	0	0	0	19,065	19,065	19,065	19,065	19,065	0	0	0	0	0	0	0	0	0	0	0
Changes in Inventories	0	0	0	0	-11,400	-21,605	-6,088	-235	0	0	0	0	0	0	0	0	0	0	0	0	39,328
Cash Flows from Investing Activities	-3,157	-21,712	-308,882	-547,500	-216,099	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0	158,045
Changes in Fixed Assets	-2,832	-20,927	-306,614	-525,178	-146,475	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0	158,045
Changes in Deferred Assets	-325	-785	-2,268	-22,322	-69,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash Flows	-3,157	-21,712	-308,882	-547,500	-227,499	66,042	196,289	206,351	223,686	223,686	215,341	223,686	223,686	223,686	223,686	215,341	223,686	223,686	223,686	223,686	421,059

ROI before Tax = 13.23%

<ROI (IRR on Total Investment) after Tax> (Unit: 1,000 US\$)

	-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Flows from Operating Activities	0	0	0	0	-11,400	60,080	196,289	206,351	216,019	216,019	216,019	173,786	171,955	170,124	168,293	174,129	172,298	170,467	170,467	209,795
EBIT (Earnings before Interest & Tax)	0	0	0	0	0	11,205	125,934	130,143	147,243	147,243	166,308	166,308	166,308	166,308	166,308	166,308	166,308	166,308	166,308	166,308
Tax Provision	0	0	0	0	0	-5,963	0	0	-7,666	-7,666	-7,666	-49,900	-51,731	-53,562	-55,392	-49,557	-51,388	-53,218	-53,218	-53,218
Depreciation	0	0	0	0	0	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378
Amortization	0	0	0	0	0	19,065	19,065	19,065	19,065	19,065	0	0	0	0	0	0	0	0	0	0
Changes in Inventories	0	0	0	0	-11,400	-21,605	-6,088	-235	0	0	0	0	0	0	0	0	0	0	0	0
Cash Flows from Investing Activities	-3,157	-21,712	-308,882	-547,500	-216,099	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0
Changes in Fixed Assets	-2,832	-20,927	-306,614	-525,178	-146,475	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0
Changes in Deferred Assets	-325	-785	-2,268	-22,322	-69,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash Flows	-3,157	-21,712	-308,882	-547,500	-227,499	60,080	196,289	206,351	216,019	216,019	207,675	173,786	171,955	170,124	168,293	165,784	172,298	170,467	170,467	367,840

ROI after Tax = 11.47%

<ROE (IRR on Equity) > (Unit: 1,000 US\$)

	-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Cash Flows from Operating Activities	0	0	0	0	-11,400	2,866	139,076	154,859	170,249	175,970	181,691	145,179	149,070	152,960	156,851	168,407	172,298	170,467	170,467	209,795
Net Income after Tax	0	0	0	0	0	-51,971	68,721	78,651	93,806	99,527	124,313	87,801	91,692	95,582	99,473	111,029	114,920	113,089	113,089	113,089
Depreciation	0	0	0	0	0	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378	57,378
Amortization	0	0	0	0	0	19,065	19,065	19,065	19,065	19,065	0	0	0	0	0	0	0	0	0	0
Changes in Inventories	0	0	0	0	-11,400	-21,605	-6,088	-235	0	0	0	0	0	0	0	0	0	0	0	0
Cash Flows from Investing Activities	-3,157	-21,712	-308,882	-547,500	-216,099	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0
Changes in Fixed Assets	-2,832	-20,927	-306,614	-525,178	-146,475	0	0	0	0	0	-8,345	0	0	0	0	-8,345	0	0	0	0
Changes in Deferred Assets	-325	-785	-2,268	-22,322	-69,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Flows from Financing Activities	1,578	10,856	212,824	451,442	140,630	0	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	0	0	0	0
Proceeds from Long-term Debt	1,578	10,856	212,824	451,442	140,630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Repayment of Long-term Debt	0	0	0	0	0	0	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	-81,733	0	0	0	0
Net Cash Flows	-1,578	-10,856	-96,058	-96,058	-86,869	2,866	57,343	73,126	88,515	94,237	91,614	63,446	67,336	71,227	75,117	78,330	172,298	170,467	170,467	367,840

ROE = 18.99%



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JICA