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ALUMINA PLANTS WORLDWIDE

Compiled by Errol D. Sehnke

**United States Department of the Interior
Bureau of Mines
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Abstract: This U.S. Bureau of Mines report provides detailed information on worldwide alumina production capacity by plant and country. The information was compiled from a variety of domestic and international sources and was based on information available to the Bureau through December 31, 1993. An introductory section (Part One - Summary) presents a world summary of alumina production capacity by plant and country. A following section (Part Two - Detail) provides detailed information on plant capacity, location, ownership, raw material sources, and other facility characteristics. This set of capacity information will be updated on a biennial basis.

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Alumina Plants - Worldwide
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INTRODUCTION

This U.S. Bureau of Mines report provides detailed information on worldwide alumina production capacity by plant and country. The information was compiled from a variety of domestic and international sources and was based on information available to the Bureau through December 31, 1993.

Capacity data represent announced installed and planned capacities and do not necessarily reflect a Bureau of Mines judgment of actual plant operating levels or timing of planned expansions. The year-end capacity is the "nameplate" capacity or estimated production capacity, whichever is larger.

An introductory section (Part One - Summary) presents a world summary of alumina production capacity by plant and country. A following section (Part Two - Detail) provides detailed information on plant capacity, location, ownership, raw material sources, and other facility characteristics. This set of capacity information will be updated on a biennial basis.

The U.S. Bureau of Mines welcomes any authoritative corrections or other comments on the world alumina data presented in this report (see form at end of this publication). Your input will improve the coverage and value of this publication.

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U.S. Bureau of Mines, Washington, DC.

PART I

SUMMARY

ALUMINA PLANTS - WORLDWIDE

PART ONE - SUMMARY

THE FOLLOWING INFORMATION ON WORLD ALUMINA PLANTS IS A SUMMARY OF PRODUCTION CAPACITY DATA BY PLANT AND COUNTRY. THE INFORMATION WAS COMPILED FROM A VARIETY OF DOMESTIC AND INTERNATIONAL SOURCES AND WAS BASED ON INFORMATION AVAILABLE TO THE U.S. BUREAU OF MINES THROUGH DECEMBER 31, 1993.

SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
ALUMINUM COMPANY OF AMERICA BAUXITE ⁺⁺	ARKANSAS	340	340	--	--	--	--	--	--
	TOTAL***	340	340	--	--	--	--	--	--
KAISER ALUMINUM AND CHEMICAL CORP. GRAMERCY ⁺	LOUISIANA	795	795	1,000	1,000	1,000	1,000	1,000	1,000
ARMET CORPORATION BURNSIDE ⁺	LOUISIANA	545	545	545	545	600	600	600	600
	TOTAL***	1,340	1,340	1,545	1,545	1,600	1,600	1,600	1,600
ALUMINUM COMPANY OF AMERICA JOINT COMFORT	TEXAS	1,735	1,735	1,735	1,735	1,735	1,735	1,735	1,735
REYNOLDS METALS COMPANY CORPUS CHRISTI ⁺	TEXAS	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700
	TOTAL***	3,435	3,435	3,435	3,435	3,435	3,435	3,435	3,435
VIRGIN ISLANDS ALUMINA INC. ST. CROIX	VIRGIN ISLANDS	--	--	635	635	635	635	635	635
	TOTAL***	--	--	635	635	635	635	635	635
	*** TOTAL UNITED STATES	5,115	5,115	5,615	5,615	5,670	5,670	5,670	5,670
ALCAN ALUMINIUM LIMITED IONQUIERE, QUEBEC ⁺	CANADA	1,140	1,140	1,150	1,150	1,175	1,175	1,175	1,175
	TOTAL***	1,140	1,140	1,150	1,150	1,175	1,175	1,175	1,175
JAMALCO JOINT VENTURE FALSE HALL, CLARENDON	JAMAICA	500	500	750	750	800	800	1,000	1,000
ALCAN JAMAICA COMPANY BARTON, ST. CATHERINE	JAMAICA	462	475	500	500	520	520	600	600

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SEE EXPLANATORY NOTES AT END OF TABLE FOR DESIGNATION OF SPECIAL SYMBOLS.

SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	19
ALCAN JAMAICA COMPANY KIRKVINE, MANCHESTER	JAMAICA	462	475	500	500	520	520	600	6
ALUMINA PARTNERS OF JAMAICA LTD. NAIN, ST. ELIZABETH	JAMAICA	--	1,180	1,180	1,180	1,450	1,450	1,450	1,4
	TOTAL***	1,424	2,630	2,930	2,930	3,290	3,290	3,650	3,6
	*** TOTAL NORTH AMERICA AND CARIBBEAN	7,679	8,885	9,695	9,695	10,135	10,135	10,495	10,4
ALCAN ALUMINIO DO BRASIL S.A. OURO PRETO, MINAS GERAIS	BRAZIL	145	150	150	150	150	150	150	1
ALCOA ALUMINIO S.A. POCOS DE CALDAS, MINAS GERAIS*	BRAZIL	250	270	270	270	270	270	270	2
CIA. BRASILEIRA DE ALUMINIO, S.A. SOROCABA, SAO PAULO	BRAZIL	300	350	350	440	440	440	440	4
ALUMINA DO NORTE DO BRASIL S.A. BARCARENA, PARA	BRAZIL	--	--	--	--	--	--	--	1,1
ALUMAR CONSORTIUM SAO LUIS, MARANHAO	BRAZIL	750	900	1,000	1,000	1,000	1,000	1,000	1,0
	TOTAL***	1,445	1,670	1,770	1,860	1,860	1,860	1,860	2,9
SURINAME ALUMINUM COMPANY PARAM	SURINAME	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,6
	TOTAL***	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,6
CVG INTERAMERICANA DE ALUMINA C.A. PUERTO ORDAZ	VENEZUELA	1,300	1,400	1,400	1,400	2,000	2,000	2,000	2,0
	TOTAL***	1,300	1,400	1,400	1,400	2,000	2,000	2,000	2,0
	*** TOTAL SOUTH AMERICA	4,395	4,720	4,820	4,910	5,510	5,510	5,510	6,6

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SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
ANDZHA ALUMINA ANDZHA [■]	AZERBAIJAN	450	450	450	450	450	450	450	450
	TOTAL***	450	450	450	450	450	450	450	450
BERGOINVEST ALUMINA STAR, BACEVICI	BOSNIA AND HERZEGOVINA	265	265	265	265	265	265	265	265
BERGOINVEST ALUMINA IRAC, VLASENICA ⁺	BOSNIA AND HERZEGOVINA	600	600	600	600	600	600	600	600
	TOTAL***	865	865	865	865	865	865	865	865
ALUMINIUM PECHINEY ARDANNE ⁺⁺	FRANCE	725	725	725	725	725	725	725	725
ALUMINIUM PECHINEY BARASSE	FRANCE	370	--	--	--	--	--	--	--
	TOTAL***	1,095	725	725	725	725	725	725	725
ALCOA CHEMIE GmbH DWDIGSHAFEN ⁺⁺⁺	GERMANY	160	--	--	--	--	--	--	--
ALUMINIUM-OXID STADE GmbH STADE NEAR HAMBURG ⁺	GERMANY	600	600	700	700	700	700	700	700
ELECTROCHEMISCHES KOMBINAT LUTA, SAXONY	GERMANY	85	85	85	--	--	--	--	--
ERTINSWERK GmbH ERGHEIM, ERFT ⁺⁺⁺	GERMANY	350	350	350	350	350	350	350	350
REINIGTE ALUMINIUM-WERKE AG HAWANDORF ⁺⁺⁺	GERMANY	120	120	120	120	120	120	120	120
	TOTAL***	1,315	1,155	1,255	1,170	1,170	1,170	1,170	1,170

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SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)								
		1988	1989	1990	1991	1992	1993	1994	19	
ALUMINIUM DE GRECE S.A. ST. NICOLAS, DISTOMON	GREECE	600	600	600	600	600	600	600	6	
	TOTAL***	600	600	600	600	600	600	600	6	
AJKA ALUMINIUMINDUSTRIAL CO. LTD. I AJKA	HUNGARY	180	180	180	180	--	--	--	-	
AJKA ALUMINIUMINDUSTRIAL CO. LTD. II AJKA	HUNGARY	300	300	300	300	300	300	300	3	
HUNGARIAN ALUMINIUM CORP. ALMASFUZITO ⁺	HUNGARY	330	330	330	330	330	330	330	3	
HUNGARIAN ALUMINIUM CORP. MOSONMAGYAROVAR ⁺⁺⁺	HUNGARY	110	110	110	110	110	110	110	1	
	TOTAL***	920	920	920	920	740	740	740	7	
AUGHINISH ALUMINA LTD. AUGHINISH ISLAND, LIMERICK	IRELAND	800	900	1,000	1,000	1,000	1,100	1,100	1,1	
	TOTAL***	800	900	1,000	1,000	1,000	1,100	1,100	1,1	
EURALLUMINA SpA PORTO VESME, SARDINIA	ITALY	780	780	780	820	820	820	820	8	
	TOTAL***	780	780	780	820	820	820	820	8	
PAVLODAR ALUMINA PAVLODAR	KAZAKHSTAN	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,0	
	TOTAL***	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,0	
ALUMINA ENTERPRISE - CRISANA ORADEA	ROMANIA	250	250	250	250	250	250	250	2	
ALUMINA ENTERPRISE - TULCEA TULCEA	ROMANIA	300	300	300	300	300	300	300	3	
	TOTAL***	550	550	550	550	550	550	550	5	

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SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
KACHINSK ALUMINA KACHINSK, SIBERIA ■ ■	RUSSIA	900	900	900	900	900	900	900	900
BOGOSLOVSK ALUMINA KRASNOTURINSK, URALS	RUSSIA	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050
OKSITOGORSK ALUMINA OKSITOGORSK ***	RUSSIA	200	200	200	200	200	200	200	200
PIKALEVO ALUMINA PIKALEVO ■ ■	RUSSIA	270	270	270	270	270	270	270	270
URALS ALUMINA KAMENSK-URALS	RUSSIA	535	535	535	535	535	535	535	535
VOLKHOV ALUMINA VOLKHOV ■ ■	RUSSIA	40	40	40	40	40	40	40	40
	TOTAL ***	2,995	2,995	2,995	2,995	2,995	2,995	2,995	2,995
COMBINAT ALUMINIJUMA PODGORICA PODGORICA ***	SERBIA AND MONTENEGRO	280	280	140	140	140	140	140	140
	TOTAL ***	280	280	140	140	140	140	140	140
ZIAR ALUMINIUM WORKS ZIAR NA HRONOM +	SLOVAKIA	100	100	100	100	100	100	100	--
	TOTAL ***	100	100	100	100	100	100	100	--
ZNIAL TOVARNA GLINICE IN ALUMINIJA KIDRICEVO ***	SLOVENIA	125	125	125	125	125	125	125	125
	TOTAL ***	125	125	125	125	125	125	125	125
ALUMINA ESPAÑOLA S.A. SAN CIPRIAN +	SPAIN	800	900	1,000	1,000	1,000	1,000	1,000	1,000
	TOTAL ***	800	900	1,000	1,000	1,000	1,000	1,000	1,000

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SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

YEAREND CAPACITY (THOUSANDS OF METRIC TONS)

<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
NIKOLAYEV ALUMINA NIKOLAYEV	UKRAINE	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050
ZAPOROZHYE ALUMINA ZAPOROZHYE	UKRAINE	245	245	245	245	245	245	245	245
	TOTAL***	1,295	1,295	1,295	1,295	1,295	1,295	1,295	1,295
BRITISH ALCAN CHEMICALS LTD. BURNISLAND, SCOTLAND***	UNITED KINGDOM	120	120	120	120	120	120	120	120
	TOTAL***	120	120	120	120	120	120	120	120
	*** TOTAL EUROPE AND CENTRAL EURASIA	14,180	13,850	14,010	13,965	13,785	13,885	13,885	13,785
FRIGUIA SOCIÉTÉ D'ECONOMIE MIXTE KIMBO	GUINEA	630	630	630	630	640	640	700	700
	TOTAL***	630	630	630	630	640	640	700	700
	*** TOTAL AFRICA	630	630	630	630	640	640	700	700
BHARAT ALUMINIUM CO. LTD. KORBA, MADHYA PRADESH	INDIA	200	200	200	200	200	200	200	200
HINDALCO INDUSTRIES LTD. RENUKOOT, UTTAR PRADESH	INDIA	300	300	300	300	350	350	350	350
INDIAN ALUMINIUM CO. LTD. BELGAUM, KARNATAKA ⁺	INDIA	180	180	180	180	180	220	220	220
INDIAN ALUMINIUM CO. LTD. MURI, BIHAR ⁺	INDIA	72	72	72	72	72	72	72	72
MADRAS ALUMINIUM CO. LTD. METTUR, TAMIL NADU ⁺	INDIA	60	60	60	60	60	60	60	60

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SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
NATIONAL ALUMINIUM CO. LTD. DAMANJODI, ORISSA ⁺	INDIA	800	800	800	800	800	800	800	1,350
	TOTAL***	1,612	1,612	1,612	1,612	1,662	1,702	1,702	2,252
NIPPON LIGHT METAL CO. LTD. SHIMIZU, SHIZUOKA ⁺⁺	JAPAN	380	380	430	450	450	450	450	450
SHOWA ALUMINIUM INDUSTRIES KK YOKAHAMA, KANAGAWA ⁺⁺⁺	JAPAN	275	275	275	275	275	275	275	275
SUMITOMO CHEMICAL CO. KIKUMOTO, EHIME ⁺⁺⁺	JAPAN	150	150	150	150	150	150	150	150
	TOTAL***	805	805	855	875	875	875	875	875
GUIZHOU ALUMINIUM GUIYANG SHI, GUIZHOU	PEOPLE'S REPUBLIC OF CHINA	400	400	400	400	400	400	400	400
KAILI ALUMINIUM KAILI SHI, GUIZHOU	PEOPLE'S REPUBLIC OF CHINA	--	--	--	--	--	--	66	66
PINGGUO ALUMINIUM INDUSTRY CO. PINGGUO XIAN, GUANGXI	PEOPLE'S REPUBLIC OF CHINA	--	--	--	--	--	--	300	300
SHANDONG ALUMINIUM ZIBO SHI, SHANDONG ⁺	PEOPLE'S REPUBLIC OF CHINA	500	500	500	500	500	500	500	500
SHANXI ALUMINIUM HEJIN XIAN, SHANXI	PEOPLE'S REPUBLIC OF CHINA	200	200	200	200	700	700	1,200	1,200
ZHENGZHOU ALUMINIUM ZHENGZHOU SHI, HENAN	PEOPLE'S REPUBLIC OF CHINA	640	640	640	640	640	640	640	800
ZHONGZHOU ALUMINIUM JIAOZUO SHI, HENAN	PEOPLE'S REPUBLIC OF CHINA	--	--	--	--	200	200	200	200
	TOTAL***	1,740	1,740	1,740	1,740	2,440	2,440	3,306	3,466

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SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
KOREA GENERAL CHEMICAL CORP. MOKP'Ŏ***	REPUBLIC OF KOREA	--	--	--	--	--	--	--	215
	TOTAL***	--	--	--	--	--	--	--	215
ETIBANK SEYDISEHIR ALUMINIUM SEYDISEHIR	TURKEY	200	200	200	200	200	200	200	200
	TOTAL***	200	200	200	200	200	200	200	200
	*** TOTAL ASIA	4,357	4,357	4,407	4,427	5,177	5,217	6,083	7,008
ALCOA OF AUSTRALIA KWINANA, WESTERN AUSTRALIA ⁺	AUSTRALIA	1,500	1,700	1,700	1,700	1,700	1,700	1,700	1,700
ALCOA OF AUSTRALIA PINJARRA, WESTERN AUSTRALIA	AUSTRALIA	2,800	3,000	3,000	3,000	3,000	3,000	3,000	3,000
ALCOA OF AUSTRALIA WAGERUP, WESTERN AUSTRALIA	AUSTRALIA	650	850	850	850	1,500	1,500	1,500	1,500
NABALCO PTY. LTD. GOVE, NORTHERN TERRITORY	AUSTRALIA	1,450	1,450	1,450	1,450	1,600	1,600	1,600	1,600
QUEENSLAND ALUMINA LTD. GLADSTONE, QUEENSLAND	AUSTRALIA	2,800	2,800	3,325	3,325	3,325	3,325	3,325	3,325
WORSLEY ALUMINA PTY. LTD. WORSLEY, WESTERN AUSTRALIA	AUSTRALIA	1,000	1,000	1,000	1,500	1,600	1,600	1,600	1,600
	TOTAL***	10,200	10,800	11,325	11,825	12,725	12,725	12,725	12,725
	*** TOTAL OCEANIA	10,200	10,800	11,325	11,825	12,725	12,725	12,725	12,725
	WORLD TOTAL*****	41,441	43,242	44,887	45,452	47,972	48,112	49,398	51,323

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SUMMARY OF ANNOUNCED ALUMINA PLANT CAPACITIES

EXPLANATORY NOTES:

- + MINOR NON-METALLURGICAL ALUMINA PRODUCTION.
- ++ APPROXIMATELY 50% NON-METALLURGICAL ALUMINA PRODUCTION.
- +++ ONLY NON-METALLURGICAL ALUMINA PRODUCTION.
- ALUMINA PRODUCTION BASED ON ALUNITE FEEDSTOCKS.
- ■ ALUMINA PRODUCTION BASED ON NEPHELINE SYENITE FEEDSTOCKS.

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ALUMINA PLANTS (SMELTER AND SPECIALTY GRADE) - WORLDWIDE: 1993

<u>COUNTRY</u>	<u>NUMBER OF PLANTS</u>	<u>TOTAL YEAREND CAPACITY</u> METRIC TONS PER YEAR	<u>(SPECIALTY-ALUMINA CAPACITY)</u> METRIC TONS PER YEAR
NORTH AMERICA AND CARIBBEAN:			
UNITED STATES	5	5,670,000	(400,000)
CANADA	1	1,175,000	(100,000)
JAMAICA	4	3,290,000	
SOUTH AMERICA:			
BRAZIL	4	1,860,000	(80,000)
SURINAME	1	1,650,000	
VENEZUELA	1	2,000,000	
EUROPE AND CENTRAL EURASIA:			
AZERBAIJAN	1	450,000	
BOSINIA AND HERZEGOVINA	2	865,000	
FRANCE	1	725,000	(315,000)
GERMANY	3	1,170,000	(540,000)
GREECE	1	600,000	
HUNGARY	3	740,000	(110,000)
IRELAND	1	1,100,000	
ITALY	1	820,000	
KAZAKHSTAN	1	1,090,000	
ROMANIA	2	550,000	
RUSSIA	6	2,995,000	(200,000)
SERBIA AND MONTENEGRO	1	140,000	(140,000)
SLOVAKIA	1	100,000	
SLOVENIA	1	125,000	(125,000)
SPAIN	1	1,000,000	
UKRAINE	2	1,295,000	
UNITED KINGDOM	1	120,000	(120,000)
AFRICA:			
GUINEA	1	640,000	
ASIA:			
INDIA	6	1,702,000	(10,000)
JAPAN	3	875,000	(639,000)
PEOPLE'S REPUBLIC OF CHINA	5	2,440,000	
TURKEY	1	200,000	
OCEANIA:			
AUSTRALIA	6	12,725,000	(150,000)
	<u>67</u>	<u>48,112,000</u>	<u>(2,929,000)</u>

PART II

DETAIL

ALUMINA PLANTS - WORLDWIDE

PART TWO - DETAIL

INFORMATION ON CAPACITY, LOCATION, OWNERSHIP, RAW MATERIAL SOURCES AND OTHER CHARACTERISTICS OF WORLD ALUMINA PLANTS IS PROVIDED BY THIS DETAILED SECTION. THE INFORMATION WAS COMPILED FROM A VARIETY OF DOMESTIC AND INTERNATIONAL SOURCES AND WAS BASED ON INFORMATION AVAILABLE TO THE U.S. BUREAU OF MINES THROUGH DECEMBER 31, 1993.

<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
ALUMINUM COMPANY OF AMERICA			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
BAUXITE	ARKANSAS	NORMAL CAPACITY	340	340	--	--	--	--	--	--

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALUMINUM COMPANY OF AMERICA	100	100	PRIMARILY TO ALCOA ALUMINUM SMELTERS - U.S.A. AND SPECIALTY ALUMINA MARKETS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY AND SPECIALTY ALUMINAS

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	SALINE CO., ARKANSAS - U.S.A.	ALUMINUM COMPANY OF AMERICA

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1952. ALUMINA PRODUCTION TERMINATED IN 1990.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... CURRENT SPECIALTY ALUMINA SHIPMENTS BASED ON ALUMINA PRODUCED AT OTHER ASSOCIATED FACILITIES.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
KAISER ALUMINUM & CHEMICAL CORP.									
GRAMERCY	LOUISIANA	NORMAL CAPACITY	795	795	1,000	1,000	1,000	1,000	1,000

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
KAISER ALUMINUM & CHEMICAL CORP. (MAXXAM GROUP INC.)	100	100	PRIMARILY TO KAISER ALUMINUM SMELTERS (U.S.A. - GHANA) AND SPECIALTY ALUMINA MARKETS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY AND CHEMICAL GRADE (200,000 TPY CHEMICAL GRADE)

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	ST. ANN PARISH - JAMAICA	KAISER JAMAICA BAUXITE CO.

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1958.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
ORMET CORPORATION			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
BURNSIDE	LOUISIANA	NORMAL CAPACITY	545	545	545	545	600	600	600	600

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
OHIO RIVER ASSOCIATES	100	100	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY AND CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE		

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1958. CLOSED IN 1985. REOPENED IN 1988.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
ALUMINUM COMPANY OF AMERICA									
POINT COMFORT	TEXAS	NORMAL CAPACITY	1,735	1,735	1,735	1,735	1,735	1,735	1,735

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
ALUMINUM COMPANY OF AMERICA	100	100	PRIMARILY TO ALCOA ALUMINUM SMELTERS - U.S.A.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	GUINEA JAMAICA	

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1954.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
REYNOLDS METALS COMPANY (SHERWIN ALUMINA PLANT)									
CORPUS CHRISTI	TEXAS	NORMAL CAPACITY	1,700	1,700	1,700	1,700	1,700	1,700	1,700

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
REYNOLDS METALS COMPANY	100	100	PRIMARILY TO REYNOLDS ALUMINUM SMELTERS - U.S.A.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL (NATURAL GAS)	SANDY AND CHEMICAL GRADE (200,000 TPY CHEMICAL GRADE)

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	BRAZIL GUYANA	

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1953.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
VIRGIN ISLANDS ALUMINA INC. (VIALCO)			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ST. CROIX	VIRGIN ISLANDS	NORMAL CAPACITY	--	--	635	635	635	635	635	635

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ORALCO MANAGEMENT SERVICES	100	100	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	GUINEA GUYANA	

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1967 - MARTIN MARIETTA. CLOSED IN 1985. REOPENED BY VIALCO IN 1990.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
ALCAN ALUMINIUM LIMITED VAUDREUIL WORKS									
JONQUIERE, QUEBEC	CANADA	NORMAL CAPACITY	1,140	1,140	1,150	1,150	1,175	1,175	1,175

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
ALCAN ALUMINIUM LIMITED	100	100	PRIMARILY TO ALCAN ALUMINUM SMELTERS - QUEBEC.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	SANDY, FLOURY, AND CHEMICAL GRADE (100,000 TPY CHEMICAL GRADE)

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	AUSTRALIA BRAZIL GUINEA GUYANA SIERRA LEONE	

REMARKS
FINANCING.....
TECHNICAL SUPPORT.....
EXPANSION CAPABILITIES.....
PRODUCTION STATUS..... START UP 1936.
FEEDSTOCK AVAILABILITY.....
SITE PROGRESS.....
POWER CONSIDERATIONS.....
EQUIPMENT.....
MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
JAMALCO JOINT VENTURE (JAMALCO)										
HALSE HALL, CLARENDON	JAMAICA	NORMAL CAPACITY	500	500	750	750	800	800	1,000	1,000

OWNERSHIP	% % SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
ALCOA AND JAMAICAN GOVERNMENT	50		SOLD BY BAUXITE AND ALUMINA TRADING CORP. (BATCO) TO INTERNATIONAL MARKETS.
CLARENDON ALUMINA PRODUCTION LTD. (JAMAICAN GOVERNMENT)	50		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	MOCHO MOUNTAINS, CLARENDON - JAMAICA	JAMALCO

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES..... EXPANSION TO 1 MIL. TPY PLANNED FOR 1994.
 PRODUCTION STATUS..... START UP 1972.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ALCAN JAMAICA COMPANY (JAMALCAN)										
EWARTON, ST. CATHERINE	JAMAICA	NORMAL CAPACITY	462	475	500	500	520	520	600	600

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALCAN ALUMINIUM LTD.	93	93	PRIMARILY TO ALCAN ALUMINUM SMELTERS - QUEBEC, CANADA AND ENGLAND.
JAMAICAN GOVERNMENT	7	7	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	ST. ANN PARISH - JAMAICA	ALCAN JAMAICA LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1959.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ALCAN JAMAICA COMPANY (JAMALCAN)										
KIRKVINE, MANCHESTER	JAMAICA	NORMAL CAPACITY	462	475	500	500	520	520	600	600

<u>OWNERSHIP</u>	<u>% % SHARE</u>		<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALCAN ALUMINIUM LTD.	93	93	PRIMARILY TO ALCAN ALUMINUM SMELTERS - QUEBEC, CANADA AND ENGLAND.
JAMAICAN GOVERNMENT	7	7	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	MANCHESTER PARISH - JAMAICA	ALCAN JAMAICA LTD.

REMARKS
FINANCING.....
TECHNICAL SUPPORT.....
EXPANSION CAPABILITIES.....
PRODUCTION STATUS..... START UP 1952.
FEEDSTOCK AVAILABILITY.....
SITE PROGRESS.....
POWER CONSIDERATIONS.....
EQUIPMENT.....
MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
ALUMINA PARTNERS OF JAMAICA LTD. (ALPART)										
NAIN, ST. ELIZABETH	JAMAICA	NORMAL CAPACITY	--	1,180	1,180	1,180	1,450	1,450	1,450	1,450

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
KAISER ALUMINUM AND CHEMICAL CORP.	65		
NORSK HYDRO ALUMINIUM A/S	35		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	ST. ELIZABETH PARISH - JAMAICA	KAISER JAMAICA BAUXITE CO.

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1969. CLOSED 1985. REOPENED 1989.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>		<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
ALCAN ALUMINIO DO BRASIL S.A. SARAMENHA			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
OURO PRETO, MINAS GERAIS		BRAZIL	NORMAL CAPACITY	145	150	150	150	150	150	150

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
ALCAN ALUMINIUM LTD.	100	100	FEED FOR ASSOCIATED ALCAN SMELTER AT SARAMENHA.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	MINAS GERIAS - BRAZIL	ALCAN ALUMINIO DO BRASIL S.A.

REMARKS

FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1945.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ALCOA ALUMINIO S.A.										
POÇOS DE CALDAS, MINAS GERIAS	BRAZIL	NORMAL CAPACITY	250	270	270	270	270	270	270	270

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALUMINUM CO. OF AMERICA	75		FEED FOR ASSOCIATED ALCOA ALUMINIO ALUMINUM SMELTER AT POÇOS DE CALDAS.
CAMARGO CORREA S.A.	25		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY AND CHEMICAL GRADE (80,000 TPY CHEMICAL GRADE)

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	MINAS GERIAS - BRAZIL	ALCOA ALUMINIO S.A.

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1972.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
CIA. BRASILEIRA DE ALUMINIO, S.A.										
SOROCABA, SAO PAULO	BRAZIL	NORMAL CAPACITY	300	350	350	440	440	440	440	440

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
INDUSTRIA VOTORANTIM S.A.	100	100	FEED FOR ASSOCIATED ALUMINUM SMELTER AT SOROCABA.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	MINAS GERIAS - BRAZIL	CIA. BRASILEIRA DE ALUMINIO

REMARKS
FINANCING.....
TECHNICAL SUPPORT.....
EXPANSION CAPABILITIES.....
PRODUCTION STATUS..... START UP 1954.
FEEDSTOCK AVAILABILITY.....
SITE PROGRESS.....
POWER CONSIDERATIONS.....
EQUIPMENT.....
MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ALUMINA DO NORTE DO BRASIL S.A. (ALUNORTE)									
BARCARENA NEAR BELÉM, PARA	BRAZIL	NORMAL CAPACITY							
		--	--	--	--	--	--	--	1,100

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
CIA. VALE DO RIO DOCE (ALUVALE)	44.8		
MINERAÇÃO RIO DO NORTE (MRN)	24.6		
NIPPON AMAZON ALUMINUM CO. (NAAC)	16.1		
CIA. BRASILEIRA DE ALUMINIO (CBA)	5.7		
LOCAL INVESTORS	8.8		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	TROMBETAS, PARA - BRAZIL	MINERAÇÃO RIO DO NORTE (MRN)

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP PROJECTED FOR 1995.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
ALUMAR CONSORTIUM			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
SAO LUIS, MARANHAO	BRAZIL	NORMAL CAPACITY	750	900	1,000	1,000	1,000	1,000	1,000	1,000

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
ALCOA ALUMINIO S.A	54		APPROX. 700,000 T/Y FOR ASSOCIATED ALUMAR ALUMINUM SMELTER - REMAINDER SOLD TO BRAZILIAN MARKETS.
BILLITON METAIS S.A.	36		
ALCAN ALUMINIO DO BRASIL	10		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	TROMBETAS, PARA - BRAZIL	MINERAÇÃO RIO DO NORTE (MRN)

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALCOA.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1984.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
SURINAME ALUMINUM COMPANY									
PARANAM	SURINAME	NORMAL CAPACITY	1,650	1,650	1,650	1,650	1,650	1,650	1,650

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALUMINUM COMPANY OF AMERICA (ALCOA)	55		SUPPLIES ADJACENT SURALCO ALUMINUM SMELTER AT PARANAM AND WORLD MARKETS.
ROYAL DUTCH SHELL GROUP (BILLITON)	45		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	GOERMOTIBO AND PARANAM - SURINAME	SURALCO AND BILLITON MAATSCHAPPIJ SURINAME

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALCOA.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1965.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
CVG INTERAMERICANA DE ALUMINA C.A. (INTERALUMINA)									
PUERTO ORDAZ, CUIDAD GUAYANA, BOLIVAR STATE	VENEZUELA	NORMAL CAPACITY 1,300	1,400	1,400	1,400	2,000	2,000	2,000	2,000

OWNERSHIP	OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
CORPORACION VENEZOLANA DE GUAYANA (CVG)		11.5	
FONDO DE INVERSIONES (FIV) - VEN. GOV.		87.0	
ALUSUISSE-LONZA HOLDING A.G.		1.5	

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC AND IMPORTED BAUXITES	LOS PIJIGUAOS - VENEZUELA	CVG BAUXITA VENEZOLANA C.A. (BAUXIVEN)
	GOVE - AUSTRALIA	GOVE ALUMINIUM LTD.
	TROMBETAS - BRAZIL	MINERAÇAO RIO DO NORTE (MRN)

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... ALUSUISSE.
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1983.
 FEEDSTOCK AVAILABILITY..... INITIALLY IMPORTED BAUXITE. AT PRESENT, PRINCIPALLY SUPPLIED BY BAUXIVEN.
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
GYANDZHA ALUMINA PLANT			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
GYANDZHA	AZERBAIJAN	NORMAL CAPACITY	450	450	450	450	450	450	450	450

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
GOVERNMENT	100	100	FEED FOR THE SUMGAIT PRIMARY ALUMINUM SMELTER NEAR BAKU AND EXPORTS TO REPUBLICS OF THE FORMER SOVIET UNION.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
VAMI ALUNITE AND BAYER	THERMAL AND HYDROELECTRIC	FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
ALUNITE AND IMPORTED BAUXITE	ALUNITE: ZAGLIK - AZERBAIJAN	

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... PILOT PLANT PHASE - 1955 TO 1965. COMMERCIAL ALUNITE PRODUCTION SINCE 1965 (APPROX. 100,000 TPY)

FEEDSTOCK AVAILABILITY..... IMPORTED BAUXITE USED AS AN ADDITIONAL FEEDSTOCK SINCE 1977.

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... FORMERLY KIROVABAD.

FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ENERGOINVEST ALUMINA									
MOSTAR, BACEVICI	BOSNIA AND HERZEGOVINA NORMAL CAPACITY	265	265	265	265	265	265	265	265

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	FEED FOR ASSOCIATED ALUMINUM SMELTER AT MOSTAR

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	MOSTAR - BOSNIA AND HERZEGOVINA	ENERGOINVEST

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... PECHINEY.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... PLANT OUT OF SERVICE SINCE APRIL, 1992 - CIVIL WAR.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ENERGOINVEST ALUMINA									
BIRAC NEAR ZVORNIK, VLASENICA	BOSINA AND HERZEGOVINA NORMAL CAPACITY	600	600	600	600	600	600	600	600

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	REPUBLICS OF THE FORMER SOVIET UNION.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	FLOURY AND CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	BOSANSKA KRUPA - BOSINA AND HERZEGOVINA	ENERGOINVEST
	JAJCE - BOSINA AND HERZEGOVINA	ENERGOINVEST
	VLASENICA - BOSINA AND HERZEGOVINA	ENERGOINVEST

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALUTERV-FKI (HUNGALU).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... PLANT REPORTEDLY CLOSED DUE TO CIVIL WAR - UNDER SERBIAN CONTROL.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
ALUMINIUM PECHINEY										
GARDANNE	FRANCE	NORMAL CAPACITY	725	725	725	725	725	725	725	725

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
PECHINEY (GOVERNMENT)	100	100	ASSOCIATED PECHINEY PRIMARY ALUMINUM SMELTERS.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	FLOURY, SANDY, AND CHEMICAL GRADE (315,000 TYP OF CHEMICAL GRADE)

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	BOKE - GUINEA WEIPA - AUSTRALIA	COMPAGNIE DES BAUXITES DE GUINEE (CBG) COMALCO LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... PECHINEY.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1893.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
ALUMINIUM PECHINEY		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
LA BARASSE	FRANCE	NORMAL CAPACITY	370	--	--	--	--	--	--

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
PECHINEY (GOVERNMENT)	100	100	ASSOCIATED PECHINEY PRIMARY ALUMINUM SMELTERS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	BOKÉ - GUINEA WEIPA - AUSTRALIA	COMPAGNIE DES BAUXITES DE GUINÉE (CBG) COMALCO LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... PECHINEY.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1908, 1967. PERMANENTLY CLOSED - JUNE, 1988.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ALCOA CHEMIE GmbH									
LUDWIGSHAFEN	GERMANY	NORMAL CAPACITY	160	--	--	--	--	--	--

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALUMINUM CO. OF AMERICA (ALCOA)	100	100	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE		

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... ALUMINA PRODUCTION TERMINATED IN 1988.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... ALCOA ACQUIRED PLANT FROM GUILINI CHEMIE GMBH IN 1982.

CURRENT SPECIALTY ALUMINA SHIPMENTS BASED ON ALUMINA PRODUCED AT OTHER ASSOCIATED FACILITIES.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
ALUMINIUM-OXID STADE GmbH (AOS)									
STADE NEAR HAMBURG	GERMANY	NORMAL CAPACITY	600	600	700	700	700	700	700

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
REYNOLDS METALS CO.	50	50	PRINCIPALLY FOR ASSOCIATED PRIMARY ALUMINUM SMELTERS.
VEREINIGTE ALUMINIUM-WERKE AG (VAW)	50	50	

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL (NATURAL GAS)	SANDY AND CHEMICAL GRADE (70,000 TPY CHEMICAL GRADE)

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	WEIPA - AUSTRALIA BOKÉ - GUINEA TROMBETAS - BRAZIL	COMALCO LTD. COMPAGNIE DES BAUXITES DE GUINÉE (CBG)

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1973.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT..... CONTINUOUS TUBE DIGESTERS DEVELOPED BY VAW.

MISC. DATA..... GALLIUM PRODUCTION CAPACITY: 20 TONS PER YEAR.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
ELECTROCHEMISCHES KOMBINAT (ALUMINIUMWERK LAUTA)										
LAUTA, NEAR HOYERSWERDA, SAXONY	GERMANY	NORMAL CAPACITY	85	85	85	--	--	--	--	--

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
MANSFELD AG (GOVERNMENT)	100	100	FEED FOR ASSOCIATED ALUMINUM SMELTER AT LAUTA, GERMANY.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER		FLOURY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE		

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1916. PERMANENTLY CLOSED IN 1991.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
MARTINSWERK GmbH										
BERGHEIM, ERFT	GERMANY	NORMAL CAPACITY	350	350	350	350	350	350	350	350

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
ALUSUISSE-LONZA GmbH (GERMANY)	100	100	WORLDWIDE MARKETS.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL (LIGNITE)	NON-METALLURGICAL - CHEMICAL GRADE

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	GOVE - AUSTRALIA MOKANJI - SIERRA LEONE	GOVE ALUMINIUM LTD. SIERRA LEONE ORE & METALS CO. (SIEROMCO)

REMARKS	
FINANCING.....	
TECHNICAL SUPPORT.....	ALUSUISSE.
EXPANSION CAPABILITIES.....	
PRODUCTION STATUS.....	START UP 1915. SOLEY CHEMICAL-GRADE PRODUCTION SINCE DEC. 1989.
FEEDSTOCK AVAILABILITY.....	
SITE PROGRESS.....	
POWER CONSIDERATIONS.....	
EQUIPMENT.....	
MISC. DATA.....	

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<u>COMPANY AND PLANT LOCATION</u>		<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
VEREINIGTE ALUMINIUM-WERKE AG (VAW) (NABWERK)										
SCHWANDORF		GERMANY	NORMAL CAPACITY	120	120	120	120	120	120	120

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
VEREINIGTE ALUMINIUM-WERKE AG (VAW)	100	100	GERMANY AND EXPORTS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (COAL)	NON-METALLURGICAL - CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	BOKÉ - GUINEA WEIPA - AUSTRALIA	COMPAGNIE DES BAUXITES DE GUINÉE (CBG) COMALCO LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAW.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1937.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
ALUMINIUM DE GRECE S.A.		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	
ST. NICOLAS, DISTOMON	GREECE	NORMAL CAPACITY	600	600	600	600	600	600	600	

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
PECHINEY	60.2		MAINLY FEED FOR ASSOCIATED ALUMINUM SMELTER AT ST. NICOLAS AND EXPORTS TO PECHINEY'S ALUMINUM SMELTER AT VLISSINGEN, NETHERLANDS.
GREEK GOVERNMENT	39.8		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	GHIONA AND PARNASSE MTS., DISTOMON - GREECE	BAUXITES PARNASSE MINING CO. DELPHES & DISTOMON (ALUMINIUM DE GRECE)

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1965.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
HELLENIC ALUMINA INDUSTRIES S.A. (ELVA)									
VOUNIHORA, THEBES REGION	GREECE	NORMAL CAPACITY -- -- -- -- -- -- -- --							

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GROUP OF STATE-OWNED RUSSIAN COMPANIES	51		PLANNED MARKET - REPUBLICS OF THE FORMER SOVIET UNION.
ELVA	39		
PRIVATE INVESTORS	10		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (OIL)	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	PARNASSE MTS., DISTOMON - GREECE	BAUXITES PARNASSE MINING CO.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA) AND KAISER ENGINEERS TECHNICAL SERVICES LTD.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP - DEPENDENT ON PROJECT FINANCING.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
AJKA ALUMINIUM INDUSTRIAL CO. LTD. I (HUNGALU)										
AJKA	HUNGARY	NORMAL CAPACITY	180	180	180	180	--	--	--	--

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
HUNGALU (GOVERNMENT)	100	100	FEED FOR ADJACENT AJKA ALUMINUM SMELTER AND EXPORTS TO FORMER SOVIET UNION.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC AND IMPORTED BAUXITES	HALIMBA - HUNGARY BOKE - GUINEA	HUNGALU COMPAGNIE DES BAUXITES DE GUINEE (CBG)

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALUTERV-FKI (HUNGALU).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1941. CLOSED IN 1992.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... HUNGALU IS CURRENTLY BEING PRIVATIZED.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
AJKA ALUMINIUMINDUSTRIAL CO. LTD.II (HUNGALU)			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
AJKA	HUNGARY	NORMAL CAPACITY	300	300	300	300	300	300	300	300

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
HUNGALU (GOVERNMENT)	100	100	FEED FOR ADJACENT AJKA ALUMINUM SMELTER AND EXPORTS TO FORMER SOVIET UNION.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY - FLOURY UNTIL 1990

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC AND IMPORTED BAUXITES	HALIMBA - HUNGARY BOKÉ - GUINEA	HUNGALU COMPAGNIE DES BAUXITES DE GUINÉE (CBG)

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALUTERV-FKI (HUNGALU).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1972.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... HUNGALU IS CURRENTLY BEING PRIVATIZED.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
HUNGARIAN ALUMINIUM CORP. (HUNGALU)		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	
ALMASFUZITO	HUNGARY	NORMAL CAPACITY	330	330	330	330	330	330	330	330

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
HUNGALU (GOVERNMENT)	100	100	DOMESTIC CONSUMPTION AND EXPORTS TO FORMER SOVIET UNION.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY AND CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC AND IMPORTED BAUXITES	FEJER - HUNGARY BOKÉ - GUINEA	HUNGALU COMPAGNIE DES BAUXITES DE GUINÉE (CBG)

<u>REMARKS</u>	
FINANCING.....	
TECHNICAL SUPPORT.....	ALUTERV-FKI (HUNGALU).
EXPANSION CAPABILITIES.....	
PRODUCTION STATUS.....	START UP 1950.
FEEDSTOCK AVAILABILITY.....	
SITE PROGRESS.....	
POWER CONSIDERATIONS.....	
EQUIPMENT.....	
MISC. DATA.....	HUNGALU IS CURRENTLY BEING PRIVATIZED. GALLIUM PRODUCTION CAPACITY: 2.5 TONS PER YEAR - VAMI PROCESS.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
HUNGARIAN ALUMINIUM CORP. (HUNGALU)										
MOSONMAGYAROVAR	HUNGARY	NORMAL CAPACITY	110	110	110	110	110	110	110	110

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
HUNGALU (GOVERNMENT)	100	100	DOMESTIC CONSUMPTION AND EXPORTS TO FORMER SOVIET UNION.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	CHEMICAL GRADE

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	BAKONY - HUNGARY	HUNGALU

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALUTERV-FKI (HUNGALU).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1934.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... HUNGALU IS CURRENTLY BEING PRIVATIZED.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
AUGHINISH ALUMINA LTD.		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	
AUGHINISH ISLAND, ASKEATON COUNTY LIMERICK	IRELAND	NORMAL CAPACITY	800	900	1,000	1,000	1,000	1,100	1,100	1,100

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
ALCAN ALUMINIUM LTD.	65	65	EXPORTED TO ASSOCIATED ALUMINUM SMELTERS.
BILLITON	35	35	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (OIL) AND ELECTRICAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	BOKÉ - GUINEA	COMPAGNIE DES BAUXITES DE GUINÉE (CBG)

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALCAN.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1983.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
EURALLUMINA SpA		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
PORTO VESME, SARDINIA	ITALY	NORMAL CAPACITY	780	780	780	820	820	820	820

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
ALUMIX SpA (GOVERNMENT)	<u>OWNER</u>	<u>PRODUCT</u>	FEED FOR ADJACENT ALUMINUM SMELTER AND EXPORTS.
COMALCO LTD.	52.1		
CLARENDON LTD.	26.9		
	21.0		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	WEIPA - AUSTRALIA	COMALCO LTD.
	BOKÉ - GUINEA	COMPAGNIE DES BAUXITES DE GUINÉE (CBG)

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1973.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
PAVLODAR ALUMINA PLANT (PAZ)									
PAVLODAR	KAZAKHSTAN	NORMAL CAPACITY	1,090	1,090	1,090	1,090	1,090	1,090	1,090

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
GOVERNMENT	100	100	EXPORTS TO REPUBLICS OF THE FORMER SOVIET UNION.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER- SINTER	THERMAL (LIGNITE)	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	TURGAI - KAZAKHSTAN KRASNOOKTYABRSK - KAZAKHSTAN	

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1964.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... BY-PRODUCT GALLIUM AND VANADIUM PRODUCTION.
FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
ALUMINA ENTERPRISE CRISANA ALUMINA PLANT										
ORADEA	ROMANIA	NORMAL CAPACITY	250	250	250	250	250	250	250	250

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
GOVERNMENT	100	100	FEED FOR ALUMINUM SMELTER AT SLATINA, ROMANIA.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	FLOURY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	APUSENI MOUNTAINS - ROMANIA	

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... VAMI (RUSSIA).
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1965.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
ALUMINA ENTERPRISE TULCEA ALUMINA PLANT										
TULCEA	ROMANIA	NORMAL CAPACITY	300	300	300	300	300	300	300	300

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
GOVERNMENT	100	100	FEED FOR ALUMINUM SMELTER AT SLATINA, ROMANIA.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	FLOURY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC AND IMPORTED BAUXITES	APUSENI MOUNTAINS - ROMANIA GREECE	

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... ALUTERV-FKI (HUNGALU).
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1973.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
ACHINSK ALUMINA PLANT (AGZ)			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ACHINSK, SIBERIA	RUSSIA	NORMAL CAPACITY	900	900	900	900	900	900	900	900

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	PRINCIPALLY FEED FOR THE ALUMINUM SMELTER AT KRASNOYARSK, RUSSIA.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
VAMI NEPHELINE DRY ROASTING	THERMAL (COAL)	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
NEPHELINE SYENITE	BELOGORSK - RUSSIA	ACHINSK COMBINAT

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1970.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
BOGOSLOVSK ALUMINA PLANT									
KRASNOTURINSK, URALS	RUSSIA	NORMAL CAPACITY	1,050	1,050	1,050	1,050	1,050	1,050	1,050

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
GOVERNMENT	100	100	FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTER.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	NORTH URALS - RUSSIA	SEVRALBOKSITRUDA

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1939. PLANT MODERNIZED IN 1980.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

DISC. DATA..... FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
BOKSITOGORSK ALUMINA PLANT										
BOKSITOGORSK	RUSSIA	NORMAL CAPACITY	200	200	200	200	200	200	200	200

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
GOVERNMENT	100	100	NON-METALLURGICAL - SPECIALTY ALUMINAS.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
COMBINATION (BAYER-SINTER)	HYDROELECTRIC	FLOURY - NON-METALLURGICAL

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	NORTH ONEGA - RUSSIA	

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... VAMI (RUSSIA).
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1938. PLANT MODERNIZED IN 1953 - 1954.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA..... OCCASIONALLY REFERRED TO AS THE TIKHVIN ALUMINA PLANT.
 FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
PIKALEVO ALUMINA PLANT (PGZ)			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
PIKALEVO	RUSSIA	NORMAL CAPACITY	270	270	270	270	270	270	270	270

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
	100	100	FEED FOR PRIMARY ALUMINUM SMELTERS WITHIN RUSSIA - PRINCIPALLY NADVOITSY AND KANDALAKSHA.
GOVERNMENT			

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
NEW VAMI NEPHELINE PROCESS	THERMAL	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
NEPHELINE SYENITE	KOLA PENINSULA - RUSSIA	

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1959. REACHED FULL CAPACITY IN 1962.

FEEDSTOCK AVAILABILITY..... NEPHELINE CONCENTRATES (28.6% Al_2O_3) FROM KOLA PENINSULA APATITE MINING OPERATIONS.

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... BY-PRODUCTS FROM ALUMINA PRODUCTION: PORTLAND CEMENT, SODA, POTASH, AND GALLIUM.
CONVENTIONAL PORTLAND CEMENT PLANT ADJACENT TO ALUMINA PLANT.
FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
URALSK ALUMINA PLANT			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
KAMENSK-URALSKI	RUSSIA	NORMAL CAPACITY	535	535	535	535	535	535	535	535

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTER.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	SOUTH URALS - RUSSIA	

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1939. PLANT RESTRUCTURED IN 1970.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... PREVIOUS CAPACITY OF APPROX. 1 MIL. TPY REDUCED DUE TO RESTRUCTURING EFFORT.
FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
VOLKHOV ALUMINA PLANT (VAZ)										
VOLKHOV	RUSSIA	NORMAL CAPACITY	40	40	40	40	40	40	40	40

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
GOVERNMENT	100	100	FEED FOR ADJACENT PRIMARY ALUMINUM SMELTER.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
VAMI NEPHELINE LIME SINTER	HYDROELECTRIC AND THERMAL	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
NEPHELINE SYENITE	KOLA PENINSULA - RUSSIA	

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1933. PLANT RESTRUCTURED IN EARLY 1950'S FOR PRODUCTION FROM NEPHELINE SYENITE.

FEEDSTOCK AVAILABILITY..... NEPHELINE CONCENTRATES (28.6% Al_2O_3) FROM KOLA PENINSULA APATITE MINING OPERATIONS.

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

DISC. DATA..... BY-PRODUCTS FROM ALUMINA PRODUCTION: PORTLAND CEMENT, SODA, POTASH, AND GALLIUM.
FIRST PLANT IN FORMER SOVIET UNION (FSU) TO PRODUCE ALUMINA FROM NEPHELINE SYENITE.
FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
KOMBINAT ALUMINIJUMA PODGORICA									
PODGORICA	SERBIA AND MONTENEGRO	NORMAL CAPACITY	280	280	140	140	140	140	140

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
GOVERNMENT	100	100	

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	NON-METALLURGICAL - CHEMICAL GRADE

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	NIKSIC - SERBIA AND MONTENEGRO	

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... PECHINEY.
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1970.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA..... PREVIOUS DESIGNATION: KOMBINAT ALUMINIJUMA TITOGRAD.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
ZIAR ALUMINIUM WORKS										
ZIAR NAD HRONOM	SLOVAKIA	NORMAL CAPACITY	100	100	100	100	100	100	100	--

OWNERSHIP	% SHARE			ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT		
ZSNP (GOVERNMENT)	100	100		FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTER AND SPECIALTY ALUMINA PRODUCTS.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
LIME SINTER	THERMAL (COAL)	FLOURY AND CHEMICAL GRADE

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	BOSNIA AND HERZEGOVINA CROATIA GUINEA HUNGARY	

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1952.

FEEDSTOCK AVAILABILITY.....

PLANT PROGRESS.....

OWNER CONSIDERATIONS.....

EQUIPMENT..... TWO PRODUCTION UNITS: NORMAL BAYER AND LIME SINTER.

ISC. DATA..... BY-PRODUCT GALLIUM PRODUCTION.

EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT (EBRD) RENOVATION PROJECT MAY RESULT IN CLOSURE OF ALUMINA PLANT.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>									
UNIAL TOVARNA GLINICE IN ALUMINIJA BORIS KIDRIC			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	
KIDRICEVO	SLOVENIA	NORMAL CAPACITY	125	125	125	125	125	125	125	125	125

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
GOVERNMENT	100	100	SPECIALTY ALUMINA MARKETS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	NON-METALLURGICAL - CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	OBROVAC - CROATIA GUINEA	DALMATINSKI RUDNICI BOKSITA

REMARKS
FINANCING.....
TECHNICAL SUPPORT..... PECHINEY.
EXPANSION CAPABILITIES.....
PRODUCTION STATUS..... START UP 1954.
FEEDSTOCK AVAILABILITY.....
SITE PROGRESS.....
POWER CONSIDERATIONS.....
EQUIPMENT.....
MISC. DATA..... PLANT REPORTEDLY CLOSED DUE TO CIVIL WAR.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ALUMINA ESPAÑOLA S.A.									
SAN CIPRIAN, NEAR CERVO, LUGO	SPAIN	NORMAL CAPACITY	800	900	1,000	1,000	1,000	1,000	1,000

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
INSTITUTO NACIONAL DE INDUSTRIA, INI (GOVERNMENT)	91.8		FEED FOR ADJACENT PRIMARY ALUMINUM SMELTER AT SAN CIPRIAN AND OTHER SPANISH ALUMINUM SMELTERS.
OTHER INTERESTS	8.2		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (OIL)	SANDY AND CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	BOKÉ - GUINEA	COMPAGNIE DES BAUXITES DE GUINÉE (CBG)

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALCAN.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1980.

FEEDSTOCK AVAILABILITY.....

PLANT PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

ISC. DATA.....

PREPARED BY U.S. BUREAU OF MINES
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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
NIKOLAYEV ALUMINA PLANT (NGZ)									
NIKOLAYEV, NEAR ODESSA	UKRAINE	NORMAL CAPACITY	1,050	1,050	1,050	1,050	1,050	1,050	1,050

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	PRINCIPALLY FEED FOR THE PRIMARY ALUMINUM SMELTERS AT TURSUNSADE (TADJIKISTAN) AND SAYANOGORSK (RUSSIA).

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	BRAZIL GUINEA JAMAICA	MINERAÇÃO RIO DO NORTE (MRN) OFFICE DES BAUXITES DE KINDIA (OBK) KAISER JAMAICA BAUXITE CO.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... PECHINEY.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1980.

FEEDSTOCK AVAILABILITY..... SHIPMENTS FROM JAMAICA HALTED IN 1991. SHIPMENTS FROM BRAZIL COMMENCED IN 1992.

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... PLANNED EXPANSION TO 2 MIL. TPY.
FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
ZAPOROZHYE ALUMINA PLANT (ZAIK)		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ZAPOROZHYE	UKRAINE	NORMAL CAPACITY	245	245	245	245	245	245	245

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
GOVERNMENT	100	100	FEED FOR ADJACENT PRIMARY ALUMINUM SMELTER AT ZAPOROZHYE AND OTHER RUSSIAN ALUMINUM SMELTERS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER		FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE		

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... VAMI (RUSSIA).

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1933. DESTROYED IN WORLD WAR II. RECONSTRUCTED IN THE 1950's.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

HISC. DATA..... PREVIOUS DESIGNATION: DNEIPR ALUMINA PLANT (DAZ).
FORMAL OWNERSHIP OF MANY ENTERPRISES IN THE FSU IS CURRENTLY TRANSITIONAL.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
BRITISH ALCAN CHEMICALS LTD.		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
BURNTISLAND, SCOTLAND	UNITED KINGDOM	NORMAL CAPACITY	120	120	120	120	120	120	120

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALCAN ALUMINIUM LIMITED	100	100	ALUMINA-BASED CHEMICAL PRODUCTS

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (COAL)	NON-METALLURGICAL - CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	BRAZIL GHANA	MINERAÇÃO DO RIO NORTE (MRN) GHANA BAUXITE CO.

REMARKS
FINANCING.....
TECHNICAL SUPPORT..... ALCAN.
EXPANSION CAPABILITIES.....
PRODUCTION STATUS..... START UP 1917.
FEEDSTOCK AVAILABILITY.....
SITE PROGRESS.....
POWER CONSIDERATIONS.....
EQUIPMENT.....
MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
FRIGUIA SOCIÉTÉ D'ECONOMIE MIXTE										
KIMBO	GUINEA	NORMAL CAPACITY	630	630	630	630	640	640	700	700

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
FRIALCO	51		EXPORT MARKETS - WORLDWIDE (CAMEROON, ETC.).
GOVERNMENT	49		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL (OIL)	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	FRIA - GUINEA	FRIGUIA SOCIÉTÉ D'ECONOMIE MIXTE

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... PECHINEY.
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1960.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 DISC. DATA..... FRIALCO: NORANDA 30%, PECHINEY 30%, ALCAN 20%, NORSK HYDRO ALUMINIUM 20%.
 PLANT OPERATOR: PECHINEY.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
BHARAT ALUMINIUM CO. LTD. (BALCO)										
KORBA, MADHYA PRADESH	INDIA	NORMAL CAPACITY	200	200	200	200	200	200	200	200

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
GOVERNMENT	100	100	FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTER.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL (COAL)	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	AMARKANTAK, MADHYA PRADESH - INDIA PANCHPATMALI, ORISSA - INDIA	BHARAT ALUMINIUM CO. LTD. (BALCO) NATIONAL ALUMINIUM CO. LTD. (NALCO)

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... ALUTERV-FKI (HUNGALU).
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1973.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
INDALCO INDUSTRIES LTD. (HINDALCO)										
ENUKOOT, UTTAR PRADESH	INDIA	NORMAL CAPACITY	300	300	300	300	350	350	350	350

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
IRLA GROUP	33		FEED FOR ASSOCIATED HINDALCO PRIMARY ALUMINUM SMELTER AT RENUKOOT.
OREIGN INVESTORS	26		
RIVATE INDIAN INVESTORS	23		
INANCIAL INSTITUTIONS	18		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
AYER	THERMAL (COAL AND OIL)	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
OMESTIC BAUXITE	AMARKANTAK, MADHYA PRADESH - INDIA	HINDALCO INDUSTRIES LTD.
	RICHIGUTA, BIHAR - INDIA	HINDALCO INDUSTRIES LTD.

REMARKS

NANCING.....

CHNICAL SUPPORT..... KAISER - ALUTERV-FKI (HUNGALU).

PANSION CAPABILITIES.....

ODUCTION STATUS..... START UP 1962.

EDSTOCK AVAILABILITY.....

TE PROGRESS.....

WER CONSIDERATIONS.....

UIPMENT.....

SC. DATA..... KAISER SOLD ITS ORIGINAL 26% EQUITY INTEREST IN HINDALCO TO COMPANY SHAREHOLDERS AND EMPLOYEES IN 1988.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
INDIAN ALUMINIUM CO. LTD. (INDAL)			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
BELGAUM, KARNATAKA	INDIA	NORMAL CAPACITY	180	180	180	180	180	220	220	210

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALCAN ALUMINIUM LIMITED	39.6		FEED FOR ASSOCIATED INDAL PRIMARY ALUMINUM SMELTERS AND EXPORT MARKETS.
INDIAN INTERESTS	60.4		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (OIL)	SANDY AND CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	KOLHAPUR DISTRICT, MAHARASHTRA - INDIA	INDIAN ALUMINIUM CO. LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALCAN.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1970.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
INDIAN ALUMINIUM CO. LTD. (INDAL)										
JRI, BIHAR	INDIA	NORMAL CAPACITY	72	72	72	72	72	72	72	72

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
ALCAN ALUMINIUM LIMITED	39.6		FEED FOR ASSOCIATED INDAL PRIMARY ALUMINUM SMELTERS AND EXPORT MARKETS.
INDIAN INTERESTS	60.4		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
AYER	THERMAL (COAL AND OIL)	SANDY AND CHEMICAL GRADE (10,000 TPY OF CHEMICAL GRADE)

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	LOHARDAGA, BIHAR - INDIA	INDIAN ALUMINIUM CO. LTD.

REMARKS

VANCING.....

CHNICAL SUPPORT..... ALCAN.

PANSION CAPABILITIES.....

ODUCTION STATUS..... START UP 1959.

EDSTOCK AVAILABILITY.....

TE PROGRESS.....

WER CONSIDERATIONS.....

JIPMENT.....

SC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
MADRAS ALUMINIUM CO. LTD. (MALCO)		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
METTUR, TAMIL NADU	INDIA	NORMAL CAPACITY	60	60	60	60	60	60	60

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
ALUMIX SpA (ITALIAN GOVERNMENT)	27		PRINCIPALLY FEED FOR MALCO PRIMARY ALUMINIUM SMELTER AT METTUR.
R. PRABHU & ASSOCIATES	24		
TAMIL NADU INDUSTRIAL INVESTMENT CORP.	11		
OTHER SHARE	38		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (COAL AND OIL)	FLOURY AND CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	SHEVAROY HILLS, SALEM DISTRICT, TAMIL NADU - INDIA	MADRAS ALUMINIUM CO. LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALUMINIO ITALIO.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1965.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... PILOT PLANT FOR BY-PRODUCT GALLIUM PRODUCTION.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
NATIONAL ALUMINIUM CO. LTD. (NALCO)									
DAMANJODI, ORISSA	INDIA	NORMAL CAPACITY	800	800	800	800	800	800	1,350

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	FEED FOR ASSOCIATED NALCO PRIMARY ALUMINUM SMELTER AND WORLDWIDE EXPORTS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (COAL)	SANDY AND CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	PANCHPATMALI, ORISSA - INDIA	NATIONAL ALUMINIUM CO. LTD. (NALCO)

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... PECHINEY.

EXPANSION CAPABILITIES..... EXPANSION TO 1.35 MIL. TPY PLANNED FOR 1995-1996.

PRODUCTION STATUS..... START UP 1987.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>199</u>
NIPPON LIGHT METAL CO. LTD. (NLM)										
SHIMIZU, SHIZUOKA	JAPAN	NORMAL CAPACITY	380	380	430	450	450	450	450	45

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALCAN ALUMINIUM LTD.	47.7		FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTERS AND EXPORT MARKETS.
PRIVATE INTERESTS	52.3		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	SANDY AND CHEMICAL GRADE (214,000 TPY CHEMICAL GRADE)

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	AUSTRALIA MALAYSIA	

REMARKS
FINANCING.....
TECHNICAL SUPPORT..... ALCAN.
EXPANSION CAPABILITIES.....
PRODUCTION STATUS..... START UP 1941.
FEEDSTOCK AVAILABILITY.....
SITE PROGRESS.....
POWER CONSIDERATIONS.....
EQUIPMENT.....
MISC. DATA..... BY-PRODUCT GALLIUM PRODUCTION.

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
SHOWA ALUMINIUM INDUSTRIES KK										
YOKAHAMA, KANAGAWA	JAPAN	NORMAL CAPACITY	275	275	275	275	275	275	275	275

OWNERSHIP	% SHARE			ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT		
SHOWA DENKO KK	100	100		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL	NON-METALLURGICAL - CHEMICAL GRADE

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
IMPORTED BAUXITE	AUSTRALIA INDONESIA	

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1934.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 OWNER CONSIDERATIONS.....
 EQUIPMENT.....
 ISC. DATA..... ACTUAL PRODUCTION REPORTEDLY IS APPROX. HALF OF RATED CAPACITY.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>199</u>
SUMITOMO CHEMICAL CO.									
KIKUMOTO, NEAR NIIHAMA, EHIME	JAPAN	NORMAL CAPACITY	150	150	150	150	150	150	15

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
SUMITOMO CHEMICALS CO.	100	100	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL	NON-METALLURGICAL - CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	AUSTRALIA INDONESIA	

REMARKS
FINANCING.....
TECHNICAL SUPPORT.....
EXPANSION CAPABILITIES.....
PRODUCTION STATUS..... START UP 1936.
FEEDSTOCK AVAILABILITY.....
SITE PROGRESS.....
POWER CONSIDERATIONS.....
EQUIPMENT.....
MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
JIZHOU ALUMINUM									
JIYANG SHI, GUIZHOU	PEOPLE'S REPUBLIC OF CHINA	NORMAL CAPACITY	400	400	400	400	400	400	400

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	FEED FOR DOMESTIC PRIMARY ALUMINUM SMELTERS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
COMBINATION	THERMAL	FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE		

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1978.
 FEEDSTOCK AVAILABILITY.....
 PLANT PROGRESS.....
 OTHER CONSIDERATIONS.....
 EQUIPMENT.....
 ADDITIONAL DATA..... A 600,000 TPY EXPANSION IS UNDER CONSIDERATION.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	

KAILI ALUMINUM

KAILI SHI, GUIZHOU

PEOPLE'S REPUBLIC
OF CHINA

NORMAL CAPACITY

-- -- -- -- -- -- -- 66

<u>OWNERSHIP</u>	<u>% OWNER</u>	<u>% SHARE PRODUCT</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
GOVERNMENT	100	100	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER		

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE		

REMARKS

FINANCING.....

TECHNICAL SUPPORT.....

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP PLANNED FOR 1994.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
PINGGUO ALUMINUM INDUSTRY CO.										
PINGGUO XIAN, GUANGXI	PEOPLE'S REPUBLIC OF CHINA	NORMAL CAPACITY	--	--	--	--	--	--	300	300

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
GOVERNMENT	100	100	

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAIER	THERMAL	FLOURY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	PINGGUO XIAN, GUANGXI - CHINA	PINGGUO ALUMINUM INDUSTRY CO.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... PECHINEY.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1994.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

ISC. DATA..... PROJECT WILL BE JOINTLY RUN WITH FOREIGN FIRMS - NISSHO IWAI AND NIPPON LIGHT METALS OF JAPAN.

PREPARED BY U.S. BUREAU OF MINES
BRANCH OF METALS
DEC. 31, 1993

<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
SHANDONG ALUMINUM			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
ZIBO SHI, SHANDONG	PEOPLE'S REPUBLIC OF CHINA	NORMAL CAPACITY	500	500	500	500	500	500	500	500

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
PROVINCIAL GOVERNMENT	100	100	FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTER AT ZIBO, SHAN XIAN DISTRICT, SHANDONG AND SPECIALTY ALUMINAS.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
SINTER	THERMAL	FLOURY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	SHANDONG - CHINA YANGQUAN, SHANXI - CHINA HENAN - CHINA	SHANDONG ALUMINIUM

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... ORIGINALLY VAMI (RUSSIA).
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1954.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA..... BY-PRODUCT CEMENT AND GALLIUM PRODUCTION.

PREPARED BY U.S. BUREAU OF MINE
 BRANCH OF METALS
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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>		<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
SHANXI ALUMINUM										
HEJIN XIAN, SHANXI	PEOPLE'S REPUBLIC OF CHINA	NORMAL CAPACITY	200	200	200	200	700	700	1,200	1,200

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
GOVERNMENT	100	100	FEED FOR DOMESTIC PRIMARY ALUMINUM SMELTERS.

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
COMBINATION	THERMAL (COAL)	FLOURY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	SHANIX - CHINA	

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... PECHINEY.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1987. A 500,000 TPY EXPANSION WAS COMMISSIONED IN 1992.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

DISC. DATA.....

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BRANCH OF METALS
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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
ZHENGZHOU ALUMINUM									
ZHENGZHOU SHI, HENAN	PEOPLE'S REPUBLIC OF CHINA	NORMAL CAPACITY	640	640	640	640	640	640	800

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
CHINA GREAT WALL ALUMINUM CORP. (GOVERNMENT)	100	100	FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTER AT ZHENGZHOU.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
COMBINATION	THERMAL	FLOURY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	XIAOQUAN, HENAN - CHINA	CHINA GREAT WALL ALUMINUM CORP.

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1966.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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 BRANCH OF METALS
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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	
ZHONGZHOU ALUMINUM										
JIAOZUO SHI, HENAN	PEOPLE'S REPUBLIC OF CHINA	NORMAL CAPACITY	--	--	--	--	200	200	200	200

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
CHINA GREAT WALL ALUMINUM CORP. (GOVERNMENT)	100	100	

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
SINTER	THERMAL	

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	XIAOQUAN, HENAN - CHINA	CHINA GREAT WALL ALUMINUM CORP.

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT.....
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1991 (?).
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 DISC. DATA.....

PREPARED BY U.S. BUREAU OF MINES
 BRANCH OF METALS
 DEC. 31, 1993

<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
KOREA GENERAL CHEMICAL CO.									
MOKP'Ŏ	REPUBLIC OF KOREA	NORMAL CAPACITY	--	--	--	--	--	--	21'

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
KOREA GENERAL CHEMICAL CORP. (GOVERNMENT)	100	100	SPECIALTY ALUMINAS FOR DOMESTIC CHEMICAL AND CERAMIC APPLICATIONS

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER		NON-METALLURGICAL - CHEMICAL GRADE

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
IMPORTED BAUXITE	WEIPA, QUEENSLAND - AUSTRALIA	COMALCO LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... KAISER ENGINEERS AUSTRALIA.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP PLANNED FOR MID-1995.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA.....

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COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	1995
ETIBANK SEYDISEHIR ALUMINIUM										
SEYDISEHIR, NEAR KONYA	TURKEY	NORMAL CAPACITY	200	200	200	200	200	200	200	200

OWNERSHIP	% OWNER	% SHARE PRODUCT	ALUMINA SHIPMENTS/MARKETS
ETIBANK (GOVERNMENT)	100	100	FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTER AT SEYDISEHIR AND EXPORT MARKET.

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAIER	THERMAL AND HYDROELECTRIC	FLOURY/SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	DOGANKUZU, TAURUS MOUNTAINS - TURKEY	ETIBANK
	MORTAS, TAURUS MOUNTAINS - TURKEY	ETIBANK

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... VAMI (RUSSIA).
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1973.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 ISC. DATA.....

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 BRANCH OF METALS
 DEC. 31, 1993

COMPANY AND PLANT LOCATION	COUNTRY OR STATE		YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
			1988	1989	1990	1991	1992	1993	1994	19
ALCOA OF AUSTRALIA LTD.										
KWINANA, WESTERN AUSTRALIA	AUSTRALIA	NORMAL CAPACITY	1,500	1,700	1,700	1,700	1,700	1,700	1,700	1,7

OWNERSHIP	%	% SHARE	ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
ALUMINUM COMPANY OF AMERICA (ALCOA)	51.00		FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTERS AND EXPORT MARKETS
WESTERN MINING CORPORATION LTD. (WMC)	48.25		
Q.B.E. NOMINEES PTY. LTD.	0.25		
Q.B.E. SECURITIES PTY. LTD.	0.25		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL (NATURAL GAS AND FUEL OIL)	SANDY AND CHEMICAL GRADE (150,000 TPY CHEMICAL GRADE)

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	JARRAHDALE, DARLING RANGE - AUSTRALIA	ALCOA OF AUSTRALIA LTD.

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... ALCOA.
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1963.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

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 BRANCH OF METALS
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COMPANY AND PLANT LOCATION	COUNTRY OR STATE	YEAREND CAPACITY (THOUSANDS OF METRIC TONS)							
		1988	1989	1990	1991	1992	1993	1994	1995
COA OF AUSTRALIA LTD.									
WJARRA, WESTERN AUSTRALIA	AUSTRALIA	NORMAL CAPACITY	2,800	3,000	3,000	3,000	3,000	3,000	3,000

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
UMINUM COMPANY OF AMERICA (ALCOA)	51.00		FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTERS AND EXPORT MARKETS.
STERN MINING CORPORATION LTD. (WMC)	48.25		
B.E. NOMINEES PTY. LTD.	0.25		
B.E. SECURITIES PTY. LTD.	0.25		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
YER	THERMAL (NATURAL GAS AND FUEL OIL)	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
MESTIC BAUXITE	DEL PARK, DARLING RANGE - AUSTRALIA	ALCOA OF AUSTRALIA LTD.
	HUNTLY, DARLING RANGE - AUSTRALIA	ALCOA OF AUSTRALIA LTD.

EMARKS
 ANCING.....
 HNICAL SUPPORT..... ALCOA.
 ANSION CAPABILITIES.....
 UCTION STATUS..... START UP 1972.
 DSTOCK AVAILABILITY.....
 E PROGRESS.....
 ER CONSIDERATIONS.....
 IPMENT.....
 C. DATA.....

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 BRANCH OF METALS
 DEC. 31, 1993

<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
ALCOA OF AUSTRALIA LTD.			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1</u>
WAGERUP, WESTERN AUSTRALIA	AUSTRALIA	NORMAL CAPACITY	650	850	850	850	1,500	1,500	1,500	1,

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ALUMINUM COMPANY OF AMERICA (ALCOA)	51.00		FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTERS AND EXPORT MARKET
WESTERN MINING CORPORATION LTD. (WMC)	48.25		
Q.B.E. NOMINEES PTY. LTD.	0.25		
Q.B.E. SECURITIES PTY. LTD.	0.25		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAYER	THERMAL (NATURAL GAS AND FUEL OIL)	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
DOMESTIC BAUXITE	WILLOWDALE, DARLING RANGE - AUSTRALIA	ALCOA OF AUSTRALIA LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALCOA.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1984.

FEEDSTOCK AVAILABILITY.....

SITE PROGRESS.....

POWER CONSIDERATIONS.....

EQUIPMENT.....

MISC. DATA..... AN ADDITIONAL 200-250,000 TPY EXPANSION CURRENTLY UNDER CONSIDERATION.

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<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
BALCO PTY. LTD.									
VE, NORTHERN TERRITORY	AUSTRALIA	NORMAL CAPACITY	1,450	1,450	1,450	1,450	1,600	1,600	1,600

<u>OWNERSHIP</u>	<u>%</u>	<u>% SHARE</u>	<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
ISS ALUMINIUM AUSTRALIA LTD. - (100% ALUSUISSE-LONZA HOLDING LTD.)	70		DOMESTIC AND EXPORT MARKETS.
VE ALUMINIUM LTD. - (70% CSR LTD. AND 30% AUSTRALIAN MUTUAL PROVIDENT SOCIETY)	30		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
VER	THERMAL (OIL)	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
MESTIC BAUXITE	GOVE PENINSULA - AUSTRALIA	NABALCO PTY. LTD.

REMARKS

FINANCING.....

TECHNICAL SUPPORT..... ALUSUISSE.

EXPANSION CAPABILITIES.....

PRODUCTION STATUS..... START UP 1972.

FEEDSTOCK AVAILABILITY.....

ENVIRONMENTAL PROGRESS.....

OTHER CONSIDERATIONS.....

EQUIPMENT.....

ADDITIONAL DATA..... PROJECT OPERATOR - NABALCO: 50% SWISS ALUMINIUM AUSTRALIA LTD. (AUSTRASWISS) AND 50% GOVE ALUMINIUM LIMITED (GAL).

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BRANCH OF METALS
DEC. 31, 1993

<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>								
QUEENSLAND ALUMINA LTD. (QAL)			<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
GLADSTONE, QUEENSLAND	AUSTRALIA	NORMAL CAPACITY	2,800	2,800	3,325	3,325	3,325	3,325	3,325	3,325

OWNERSHIP	% SHARE		ALUMINA SHIPMENTS/MARKETS
	OWNER	PRODUCT	
COMALCO LTD.	30.3		FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTERS AND EXPORT MARKET
MAXXAM GROUP INC.	24.6		
ALCAN ALUMINIUM LTD.	21.4		
ALUMINIUM PECHINEY	20.0		
FINANCIAL INSTITUTIONS	3.7		

TYPE OF PROCESS	TYPE OF POWER	TYPE OF ALUMINA PRODUCT
BAYER	THERMAL (COAL AND NATURAL GAS)	SANDY

TYPE OF FEEDSTOCK	SOURCE OF FEEDSTOCK	FEEDSTOCK SUPPLIER
DOMESTIC BAUXITE	WEIPA, QUEENSLAND - AUSTRALIA	COMALCO LTD.

REMARKS
 FINANCING.....
 TECHNICAL SUPPORT..... KAISER AND PECHINEY.
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1967.
 FEEDSTOCK AVAILABILITY.....
 SITE PROGRESS.....
 POWER CONSIDERATIONS.....
 EQUIPMENT.....
 MISC. DATA.....

PREPARED BY U.S. BUREAU OF MINING
 BRANCH OF METALS
 DEC. 31, 1993

<u>COMPANY AND PLANT LOCATION</u>	<u>COUNTRY OR STATE</u>	<u>YEAREND CAPACITY (THOUSANDS OF METRIC TONS)</u>							
		<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>
WORSLEY ALUMINA PTY. LTD.									
WORSLEY, WESTERN AUSTRALIA	AUSTRALIA	NORMAL CAPACITY	1,000	1,000	1,000	1,500	1,600	1,600	1,600

<u>OWNERSHIP</u>	<u>% SHARE</u>		<u>ALUMINA SHIPMENTS/MARKETS</u>
	<u>OWNER</u>	<u>PRODUCT</u>	
REYNOLDS METALS CO.	50.0		FEED FOR ASSOCIATED PRIMARY ALUMINUM SMELTERS AND EXPORT MARKETS.
ROYAL DUTCH/SHELL GROUP (BILLITON)	37.5		
MIKAWA IMAI	6.0		
DAEWOO STEEL	4.0		
HYUNDAI	2.5		

<u>TYPE OF PROCESS</u>	<u>TYPE OF POWER</u>	<u>TYPE OF ALUMINA PRODUCT</u>
BAI	THERMAL (COAL)	SANDY

<u>TYPE OF FEEDSTOCK</u>	<u>SOURCE OF FEEDSTOCK</u>	<u>FEEDSTOCK SUPPLIER</u>
WESTERN AUSTRALIAN BAUXITE	MT. SADDLEBACK, DARLING RANGE - AUSTRALIA	WORSLEY ALUMINA PTY. LTD.

REMARKS
 FINANCING.....
 FINANCIAL SUPPORT..... REYNOLDS.
 EXPANSION CAPABILITIES.....
 PRODUCTION STATUS..... START UP 1985.
 FEEDSTOCK AVAILABILITY.....
 CONSTRUCTION PROGRESS.....
 OTHER CONSIDERATIONS.....
 COMMENTS.....
 ADDITIONAL DATA.....

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 BRANCH OF METALS
 DEC. 31, 1993

GLOSSARY:

Alumina. Aluminum oxide, Al_2O_3 .

Alunite. A basic potassium aluminum sulfate, $\text{KAl}_3(\text{OH})_6(\text{SO}_4)_2$. Closely resembles kaolinite and occurs in similar locations.

Bauxite. A natural occurring material primarily composed of aluminum hydroxides. The principal ore of aluminum.

Bayer process. The commercial process for extracting alumina from bauxite before electrolytic reduction to produce aluminum. The bauxite is digested in a solution of sodium hydroxide, which converts the alumina to soluble aluminate. After separation of undissolved solid wastes ("red mud"); aluminum hydroxide is filtered out, washed, and calcined for metal production.

Combination process. Method for extracting alumina from high-silica bauxites, in which the bauxite is first subjected to a Bayer process caustic leach. The resulting red mud, containing sodium aluminum silicate, is sintered with limestone plus soda ash and then leached with water to recover alumina and soda.

Floury alumina. Fine-grained, highly calcined, powdery textured alumina; also dusty, easily airborne. Traditionally produced by European Bayer plants.

FSU. Abbreviation for Former Soviet Union.

Nepheline syenite. A coarse-grained igneous rock of intermediate composition, undersaturated with regard to silica, and consisting essentially of nephelite $(\text{Na,K})(\text{AlSiO}_4)$.

Non-metallurgical. Not used in the production of metal - i.e., specialty alumina.

Sandy alumina. Coarse-grained, porous, granular textured alumina that has not been calcined to the alpha alumina stage (artificial corundum). Resembles fine sand, hence free-flowing, with nondusting qualities. The relatively large surface area of sandy alumina permits its use as an absorbent in dry scrubber units at primary aluminum smelters.

Sintering process. The method of producing alumina from low-grade, high-silica ores based on the sintering of multicomponent feedstocks. It is used independently or in conjunction with the Bayer process (combination process).

TPY. Abbreviation for tons per year.

To:

U.S. Bureau of Mines
Attn: E.D. Sehnke
810 7th St., NW, MS 5208
Washington, DC 20241-0002

Additions, Revisions, Deletions, and Comments Form

Alumina Plants-Worldwide (SP 17-94)

Date: _____

NAME: _____

TITLE: _____

ORGANIZATION: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP: _____

COUNTRY: _____

TELEPHONE: _____ FAX: _____

COMMENTS: _____

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