

## **Chemicals** Project references



## ABB Inc.

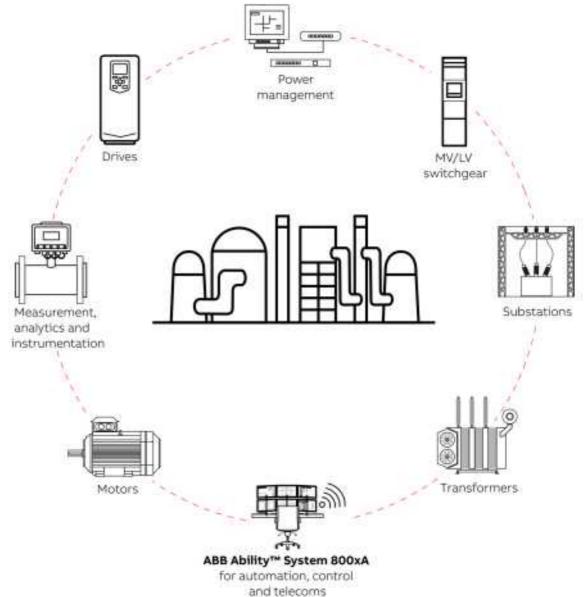
3700 West Sam Houston Parkway South Houston, Texas 77042 Phone: +1 713 587 8146 Fax: +1 713 821 3911

www.abb.com/chemical



ABB provides products, solutions and services that enhance the productivity and energy efficiency of a broad range of chemical processes, from the smallest batch plant to the largest continuous petrochemical complex. Our experience has enabled us to create long-term partnerships with several chemical and petrochemical companies across the globe. Whether you need chemical process consultants, batch control, modular systems, automation or electrical experts, ABB's global team and centers of excellence will together support you and will address your needs. Our integrated solutions offer the industry's best availability, quality, risk reduction and information flow.

## Plant-wide solutions to optimize productivity, energy efficiency and safety



4 Be in Chemicals and Refining A proven approach for transforming your challenges into opportunities

Client / EPC or SI Country		ry Application		Chemical Category	Start-up
Petrochemicals					
Chemopetrol	CZ	Ethylene plant	325110	Petrochemicals	
China Oil & Natural Gas Co.	CN	Styrene Plant	325110	Petrochemicals	
Chinese Petroleum Corporation (CPC)	TW	Power Management	325110	Petrochemicals	2003
Chinese Petroleum Corporation (CPC)	TW	Aromatic plant (BTX #5)	325110	Petrochemicals	2004
Dow Chemical Company	DE	Ethylene cracker	325110	Petrochemicals	2008
Dow Siam Polyethylene Co	TH	Ethylene Oxide, Polyurethane etc. production complex	325110	Petrochemicals	2008
Dow Chemical Company	US	Benzene production plant	325110	Petrochemicals	2009
Dow Haltermann Chemicals	UK	Tank Farm (120 tanks)	325110	Petrochemicals	
ENI Polimeri Europa	IT	Ethylene	325110	Petrochemicals	
Huntsman / Orica / Qenos	AU	Complex of 6 chemical plants supplying various intermediate chemicals and speciality surfactants including raw materials for the agricultural, rubber and plastics industriae	325110	Petrochemicals	
INA Industrija Nafte / INTEA	HR	Ethane recovery plant	325110	Petrochemicals	2005
Inner Mongolia QingHua Group	CN	Coal fired power plant for electricity and process steam for coal-to-synthetic natural gas (SNG) complex	325110	Petrochemicals	2012
Jam Petrochemical / Lurgi	IR	Butadiene Extraction Plant	325110	Petrochemicals	
OMV	AT	Ethylene plant	325110	Petrochemicals	2005
Pars Oil & Gas Company (POGC) / Daelim	IR	Olefin plant no. 9	325110	Petrochemicals	
Petkim / Alstom Power	TR	Egarol turbine control in large petrochemical complex	325110	Petrochemicals	2006
Pemex Gas y Petroquímica Básica	МХ	Process & compressor control & protection in cryogenic / liquefaction terminal for ammonia, propane, propane/butane gas & ethylene	325110	Petrochemicals	2006
Pemex Gas y Petroquímica Básica	MX	Ethylene oxide (EO) plant and polyethylene (PE) plant	325110	Petrochemicals	2009
Petrochina Huabei Oil Field Company	CN	Benzene Production, Progression Reforming	325110	Petrochemicals	2006
Polimeri Europa	IT	Petrol quality improvement in petrochemical complex	325110	Petrochemicals	
Reliance Industries	IN	Linear Alkali Benzene (LAB) plant	325110	Petrochemicals	2006
Reliance Industries	IN	Power Mgmt System	325110	Petrochemicals	
Sadara Chemical Company	SA	Largest petrochemical complex ever built in a single phase with 26 plants	325110	Petrochemicals	2015 - 2016
Saudi Petrochemical Company	SA	Power factor correction (PFC) and power mgmt solution (PMS) for petrochemical complex with 6 world-scale plants	325110	Petrochemicals	2011
TVK	HU	"Ethylene 1" plant	325110	Petrochemicals	
TVK	HU	Polyolefins	325110	Petrochemicals	
Xinjiang Guanghui New Energy	CN	Captive power plant for electricity and process steam for coal-to-gas (CTG) complex (methanol and dimethyl ether)	325110	Petrochemicals	2010
Yeochun NCC Co.	KR	Ethylene, BTX and Utility processes of plant no. 2	325110	Petrochemicals	2007
Yeochun NCC Co.	KR	Co-generation power plant in petrochemical complex	325110	Petrochemicals	2012
ZAK	PL		325110	Petrochemicals	2008
Industrial Gases					
AGA	FI	O <sub>2</sub> gas plant (air separation)	325120	Industrial Gases	
Air Products	US	Multi-site HYCO facility and air separation unit (ASU) plants	325120	Industrial Gases	2008
Air Products	NL	Air separation unit (ASU) plant	325120	Industrial Gases	2009
Amerya Petroleum Refining Company	EG	Nitrogen process plant	325120	Industrial Gases	2011
Carbagas – Air Liquide	СН	Air separation plant	325120	Industrial Gases	
Dow Chemical Company	US	Syngas plant	325120	Industrial Gases	2004

			or we
utomation 00xA Freelance	Integr. Bat safety Mg		Process Marines Process Services Other Ext.App
X			
Х	Х	х	Replacing Emerson Provox
x	X	x	Replacing ABB Contronic P X
x			X
x			
x		x	
x		×	Change to ABB Contronic P
X			
Х	х	Х	Replacing ABB Advant / MOD300
x			
x		x	Integration with Siemens SAS
X			110 MVAR PFC System
			ABB DCS Advant / MOD300
x	x	x	Replacing MOD300
	~	~	
		X	Revamping DCS Advant / MOD300 (Sentinel)
(		Х	Replacing ABB DCS Master
		x	Replacing ABB DCS Harmony Infi 90 (Sentinel)
			SS (Jentinei)

Client / EPC or SI	Country	Application	NAICS	Chemical Category	Start-up
Petrochemicals					
Haldor Topsoe	DK	Skid mounted compact hydrogen unit (HTCR type)	325120	Industrial Gases	2012
Haldor Topsoe	DK	Skid mounted compact hydrogen unit (HTCR type) in	325120	Industrial Gases	2012
IRPC	ТН	methanol plant M-450 Nitrogen plant at the Utility 1 (UT1)	325120	Industrial Gases	2008
Linde Engineering Co., Ltd	CN	Furnace control	325120	Industrial Gases	2009
Linde Kryotechnik AG	DE	H2 liquefaction plant	325120	Industrial Gases	2008
Messer Group	ES AR	Air separation plant	325120		2008
Petrobras Petrochemicals PTT Chemical		TSA (Temperature Swing Adsorption) plant		Industrial Gases	2009
	TH	Gas Processing Complex	325120	Industrial Gases	
Solvay	DE	SF6 plant	325120	Industrial Gases	2007
Thai Petrochemical Industry Yara Praxair	TH	Nitrogen process plant	325120	Industrial Gases	2007
	NO	Air separation plant	325120	industrial Gases	1998
Alkalies & Chlorine	40	Load Shedding & SOE Control System for 33KV Switchgear	225101	Allustics 0. Chloring	
lluar S.A.I.C.,	AR	and Rectifier Unit	325181	Alkalies & Chlorine	
Arabian Alkali Company	SA	Caustic soda plant	325181	Alkalies & Chlorine	2008
rabian Chlor Vinyl Company	SA	Electrical monitoring of MV substation for integrated chlor- alkali complex	325181	Alkalies & Chlorine	2012
rvand Petrochemical Company	IR	Chlor-alkali plant & brine saturation, EDC / VCM (combined) plant, S-PVC and E-PVC plants	325181	Alkalies & Chlorine	
ASF SE	DE	Chlor-alkali plant no. 3	325181	Alkalies & Chlorine	2008
anexus Chemicals	CA	Chlor-alkali plant	325181	Alkalies & Chlorine	2010
ow Mitsui Chlor-Alkali LLC	US	Chlor-alkali (caustic soda and chlorine) complex "Chlorine 7"	325181	Alkalies & Chlorine	2013
handong Haitian Bio-Chemical Co.	CN	1,000,000 t/yr pure alkali production	325181	Alkalies & Chlorine	2008
(emira	AR	New chlorine dioxide plant	325181	Alkalies & Chlorine	2008
emira	SE	New chlorine dioxide plant	325181	Alkalies & Chlorine	2010
Din Chemicals	US	Evaporator in chlor- alkali production, Truck loading and	325181	Alkalies & Chlorine	
Din Chemicals	US	800xA training system Evaporator Process	325181	Alkalies & Chlorine	
hanghai HuaSheng Chemical Co.	CN	New site with 36,000 t/yr caustic soda and 30,000 t/yr VCM	325181	Alkalies & Chlorine	
estolit GmbH & Co	DE	plant Large fully integrated PVC production plants	325181	Alkalies & Chlorine	
hongyanjilantai Salt Chemical Group	CN	Chlor-alkali electrolysis for 400k t/yr PVC production	325181	Alkalies & Chlorine	2007
Basic Inorganic Chemicals					
nglogold Ashanti Mineração	BR	New sulphuric acid plant for own use in gold production but	325188	Basic Inorganic Chemicals	2006
rkema	FR	also for sale Production of chlorine specialties e.g. sodium perchlorate and ammonium perchlorate, a powerful oxidizing agent	325188	Basic Inorganic Chemicals	2007
New 2	10		22510.0	Dania la constita Chamina la	
Atanor S.A.	AR	Oxygenated Water Plant (H <sub>2</sub> O <sub>2</sub> )	325188	Basic Inorganic Chemicals	2009 8 2011
BASF SE	DE	Integrated MSH complex (SO <sub>2</sub> /SO <sub>3</sub> sulfur dioxide trioxide) Manufacturing of Ni-Co-Mn cathode materials for Li-ion batt	325188	Basic Inorganic Chemicals Basic Inorganic Chemicals	2008 & 2011 2012-2014
Canexus Chemical	CA	Sodium Chlorate plant	325188	Basic Inorganic Chemicals	2008
ChemiKuwait	KW	Sulphuric acid plant	325188	Basic Inorganic Chemicals	2010
CRI Catalyst Company	US	Catalyst plant	325188	Basic Inorganic Chemicals	2008
ika Chile S.A.	CL	Sodium chlorate plant	325188	Basic Inorganic Chemicals	2004
Elkem Bjølvefossen	NO	Induction furnace of a 2.5 t silicon metal smelter	325188	Basic Inorganic Chemicals	
ilkem Solar	NO	Silicon production for solar cell industry	325188	Basic Inorganic Chemicals	2009
rachem	US	Alkaline Manganese production Wet-gas sulphuric acid condenser unit (WSA) from Haldor	325188	Basic Inorganic Chemicals	
laldor Topsoe	DK	Topsoe	325188	Basic Inorganic Chemicals	
ogistica de Quimicos del Sur S.A.	PE	New sodium hydrosulfide (NaSH) storage and dispatch / tank farm	325188	Basic Inorganic Chemicals	2007
MEMC Electronic Materials SpA	IT	Polysilicon manufacturing complex	325188	Basic Inorganic Chemicals	2009-2011
Kemira Oyj	FI	Loading terminal / tank farm for sulfur dioxide	325188	Basic Inorganic Chemicals	2006
Millennium Inorganic Chemicals	BR	Titanium Dioxide plant	325188	Basic Inorganic Chemicals	
ICIC	EG	Sulphuric acid plant	325188	Basic Inorganic Chemicals	2007
ICIC	EG	Potassium sulfate production plant	325188	Basic Inorganic Chemicals	2007
NEFAS	SA	Potassium sulfate production plant	325188	Basic Inorganic Chemicals	2007

				rior	Hicat	on ment	Process Are	W <sup>tiC</sup>		
Automati	on		Datah	Migration	Electri	Instruit	Proces	service		
800xA	Freelance	Integr. safety	Batch Mgmt.						Other	Ext.Apprv
х										
x										
x				х					Replacing ABB DCS MOD300	×
x				~					using Sentinel subscripton	~
x	х									
	x									
		х								
х					Х		х			
		х								
х				Х					Replacing Siemens S5 PLC	
	Х									
Х					Х				Integrated with MicroSCADA Revamp ABB DCS Advant /	
Х				Х					MOD300	
Х										
	Х								3x systems	
х				Х					Replacing ABB DCS Maestro UX Replacing ABB DCS Harmony	Х
Х		Х		Х					(Sentinel)	
х		х							GIS and power & distribution transformers	Х
	Х									
×										
X					Х					
x										
X		x								
x				х					Replacing ABB DCS Master	
	х									
х						х				
х				х					Replacing ABB DCS MOD300 replacing Schneider PLC and	
		~							HIMA fail-safe PLC	
x		X								X
x									MAV	x
х		х		х					Connecting to ABB DCS Harmony (Sentinel)	
х				х					Replacing ABB_DCS Advant OCS	
х				х					Replacing operator level ABB DCS MOD300 (Sentinel)	
х				х					Modernizing ABB DCS MOD300	
х										
Х		х							LV package	
Х										
Х		х								
									Compact 800	
Х		х		Х					Replacing ABB DCS Contronic P ABB drives, MCC and	
Х						Х			instrumentation	
Х				Х					Revamp ABB Advant	
	x									
	x									

,	ation	nalytics	
Instrument	Proces	5 Arabitics Service	e''

Client / EPC or SI	Country	Application	NAICS	Chemical Category	Start-up
OMG	GB	Cobalt Carboxylates plant	325188	Basic Inorganic Chemicals	
Petrobras Energia	AR	Ammonium thiosulfate production	325188	Basic Inorganic Chemicals	2004
Pooyesh Petrochemical Company	IR	Hydrogen peroxide pilot plant	325188	Basic Inorganic Chemicals	2001
Wacker Chemie AG	DE	Production line "Poly 9" with 15,000 t/yr in polysilicon	325188	Basic Inorganic Chemicals	2011
Yunnan Three Circles Chemical Co.	CN	comolex Sulphuric acid production, 1.2mio t/yr	325188	Basic Inorganic Chemicals	2006
Yunnan Three Circles Chemical Co.	CN	Sulphuric acid production, 600k t/yr	325188	Basic Inorganic Chemicals	2007
Yunnan Xinli Non-Ferrous Metal Co.	CN	High TiO2 Slag Smelting plant 80,000 t/yr	325188	Basic Inorganic Chemicals	2008
Cyclic Crudes and Intermediates		····g·· ···			
BASF SE	DE	DNT-MNT / TDA Toluidine Plant	325192	Cyclic Crudes and Intermediates	2009
BASF SE	DE	Poly-isocyanates plant Basonat® hardener for polyurethane	325192	Cyclic Crudes and Intermediates	2009
		(PUR) coatings Poly-Tetrahydrofuran (PTHF/THF) and poly-isocyanate			
BASF Chemicals Co. Ltd. (BACH)	CN	(Basonat®) plant	325192	Cyclic Crudes and Intermediates	2003 & 2009
BASF	CN	MDI (methylene diphenyl diisocynate) complex with 5 plants	325192	Cyclic Crudes and Intermediates	2014
BASF	KR	TDI, DNT + CCD complex	325192	Cyclic Crudes and Intermediates	2003
BASF	KR	TDI, DNT + CCD complex	325192	Cyclic Crudes and Intermediates	2008
Huntsman	HU	Performance products manufacturing	325192	Cyclic Crudes and Intermediates	
RPC	TH	Poly Toluene Catalyst (PTK) batch plant	325192	Cyclic Crudes and Intermediates	2008
Ethyl Alcohol					
Acciona Biocombustibles	ES	Biodiesel plant	325193	Ethyl Alcohol	2008
Alberta Envirofuels	CA	Integration of electrical control system with process control for Isooctane production	325193	Ethyl Alcohol	2012
Biox Corporation	CA	Biodiesel production	325193	Ethyl Alcohol	2006
CropEnergies	DE	Bio-ethanol and bio-diesel plant, 260,000 m³/yr	325193	Ethyl Alcohol	2005
Hexion / Momentive	IT	Methanol and Biodiesel production	325193	Ethyl Alcohol	2010
Mae Sod Clean Energy Co.	тн	Producing bio fuels (alcohol) out from molasses. Control of fermentation, distillation, concentration, dehydration, cooling tower and auxiliaries' processes	325193	Ethyl Alcohol	2008
Natural Energy West GmbH	DE	Biodiesel and Glycerine production	325193	Ethyl Alcohol	2008
National Bio Energy	SE	Beneration bio-ethanol pilot plant	325193	Ethyl Alcohol	2009
NovoZymes	US	Production of enzymes for bioethanol production	325193	Ethyl Alcohol	2010
Petro Green Co., Ltd.	TH	Bio-ethanol plant ethanol from molasses. Control of fermentation, distillation, concentration, dehydration, cooling tower and auxiliary processes.	325193	Ethyl Alcohol	2006
Petro Green Co., Ltd.	TH	Bio-ethanol plant (3rd project with this client)	325193	Ethyl Alcohol	2007
StI Biofuels Oy	FI	Bio-ethanol plant			2007
Thai Agro Energy Plc	TH	Bio-ethanol and biogas plant (from sugar cane bagasse)	325193	Ethyl Alcohol	2004
All Other Basic Organic Chemicals			525155	Ediyi Alconor	2004
Atanor	AR	Formaldehyde (Formol) plant	325199	All Other Basic Organic Chemicals	
Atanor	AR	Formal II	325199	All Other Basic Organic Chemicals	2006
Atanor S.A.,	AR	Ethyl acetate plant	325199	All Other Basic Organic Chemicals	2008
Atanor S.A.,	AR	Acetic acid	325199	All Other Basic Organic Chemicals	2004
					2004
BAE Systems	GB	Acids plant	325199	All Other Basic Organic Chemicals	2004
BASF Chemicals Co. Ltd.	CN	Poly-Tetrahydrofuran (PTHF/THF) and poly-isocyanate (Basonat®) plant	325199	All Other Basic Organic Chemicals	2003 & 2009
BASF SE	DE	Methylglycinediacetic Acid (MGDA) plant, Trilon M®	325199	All Other Basic Organic Chemicals	2009
BASF SE	DE	Methylglycinediacetic Acid (MGDA) plant, Trilon B®	325199	All Other Basic Organic Chemicals	2011
BASF	US	Diols (glycols) complex with 7 process plants / units	325199	All Other Basic Organic Chemicals	2012
BASF SE	DE	Adipic acid plant	325199	All Other Basic Organic Chemicals	2012
Cognis Oleochemicals	MY	Packaging end of Fatty Acid plant	325199	All Other Basic Organic Chemicals	2007
		Production of pectin, carrageenan and refined locust bean			
CP Kelco	DK	gum	325199	All Other Basic Organic Chemicals	

Automatio				Migration	tiectification	INST	Prov	services		
300xA	Freelance	Integr. safety	Batch Mgmt.						Other	Ext.Apprv
х			Х							
х										
	Х									
Х	X	Х								
	x									
х	~									x
х										х
х										х
х							х		MAV / Interfaces to fail-safe PLCs (HIMA)	х
Х							х		MAV	х
									MAV+MEV/ 3x ABB DCS Symphony	х
х				х					Replacing ABB DCS Symphony	х
	х									
Х			Х	Х					ABB DCS MOD300	
	~									
~	Х				×					
X					×					
x						x			MAV+MEV	
x			х	х		~			Replacing ABB DCS DCI System	
~			~	~					Six (Sentinel)	
х										
	Х									
х			х							
Х					Х					
х										
Х										
х									With electrical drives (VSD) and motors	
х									MCC	
									Compact 800	
Х										
Х										
									Revamp of ABB heritage DCS	
Х				Х					Kent P4000	
х							×		MAV System	×
Х						Х				×
X				×					Replacing ABB DCS Symphony Replacing NovaTech/GSE DCS	×
X			Х	X					"D/3"	X
Х				X					Replacing ABB DCS Maestro UX Compact 800 replacing Siemens	X
				Х					S5 PLC solution Replacing Wonderware InTouch	
Х				Х					HMI/SCADA	
4	to del		A STATE OF	Contra la	and the owner of				-	-





R

Client / EPC or SI	Country	Application	NAICS	Chemical Category	Start-up
Dow Chemical Ltd.	CN	Oxygenated solvents production (used in paints and coatings	325199	All Other Basic Organic Chemicals	2009
Dow Chemical Company	NL	TNZ Polyols production	325199	All Other Basic Organic Chemicals	2008
Dow Chemical Company	TW	Polyether Polyols plant	325199	All Other Basic Organic Chemicals	
MTP HPPO Manufacturing Company	ТН	Hydrogen-peroxide-to-propylene oxide (HPPO) production	325199	All Other Basic Organic Chemicals	2011
Dow Haltermann	GB	Production of hydrocarbon based specialties and solvents (high purity n/i- pentanes as well as cyclopentanes), esters, natural alcohols and derivatives	325199	All Other Basic Organic Chemicals	2004
Evonik	DE	Chlorsilane "Siridion" plant	325199	All Other Basic Organic Chemicals	2007
Guizhou Crystal Chemical Company	CN	Polyvinyl Acetate (PVA) and Polyvinyl Alcohol (VAC) production	325199	All Other Basic Organic Chemicals	2002
Hexion / Momentive	IT	Methanol and Biodiesel production	325199	All Other Basic Organic Chemicals	2010
Invista	CA	Adipic acid production	325199	All Other Basic Organic Chemicals	2010
Invista	SG	Adipic acid production	325199	All Other Basic Organic Chemicals	
ITALSIGMA / Italcementi Group	IT	Cement additives	325199	All Other Basic Organic Chemicals	2004
Kemira	FI	Formic Acid production	325199	All Other Basic Organic Chemicals	
PKN Orlen Group	PL	Ethylene Oxide & Glycols production	325199	All Other Basic Organic Chemicals	
Quimica Venoco	VE	Lubricants and additives production (for automotive	325199	All Other Basic Organic Chemicals	2009
Repsol YPF		industry)		-	2005
Repsol YPF	AR	Wax Hydro Treatment Plant	325199	All Other Basic Organic Chemicals	
South Pacific Viscose	ID	Carbon disulfide absorption plant	325199	All Other Basic Organic Chemicals	2006
Statoil	NO	Methanol plant	325199	All Other Basic Organic Chemicals	2004
Shandong Yankuang Group	CN	Methanol production	325199	All Other Basic Organic Chemicals	2006
Yee Fong Chemical	TW	Solvent recovery process in propylene oxide based glycol ethers production	325199	All Other Basic Organic Chemicals	2006
Yunnan Yunwei Chemical Refining Co., Ltd	CN	Butanediol (BDO) production,	325199	All Other Basic Organic Chemicals	2008
Henan Lantian Group,	CN	Methanol Production	325199	All Other Basic Organic Chemicals	
ZAK	PL	Oxoplast plant (alcohols for plastics, paints & lacquers)	325199	All Other Basic Organic Chemicals	2008
Plastics Material and Resins					
AdvanSA	GB	Pure Terephthalic Acid (PTA) plant, 550,000 t/yr, secondary Oxidation Control and stable control of Crude TA slurry for PTA production	325211	Plastics Material and Resins	
AkzoNobel	SE	Cellulose derivatives production	325211	Plastics Material and Resins	2007
AkzoNobel	SE	Pilot plant / reactor control for developing recipes for cellulose-based rheology additives	325211	Plastics Material and Resins	2004
AkzoNobel	SG	Pilot plant / reactor control for developing recipes for	325211	Plastics Material and Resins	
Alpek Group	МХ	cellulose-based rheology additives Dimethyl Terephthalate (DMT) plant (Petrocel) and PTA plant	325211	Plastics Material and Resins	1986 / 1996 8
Arkema	US	(Temex) Kynar® polymer and monomer production	325211	Plastics Material and Resins	2003 2008 & 2010
Arkema	FR	polyamide plant (Rilsan®)	325211	Plastics Material and Resins	2008
Arvand Petrochemical Company	IR	Chlorine-alkali plant & brine saturation, EDC / VCM	325211	Plastics Material and Resins	
		(combined) plant and S-PVC and E-PVC plants PVC resins plant, 130k t/yr			2008
Australian Vinyls	AU		325211	Plastics Material and Resins	
Basell Polyolefine GmbH	DE	FBR (fluidized-bed reactors) pilot plant	325211	Plastics Material and Resins	2005
BASF SE	DE	Polyisobutylene plant, Oppanol® and Glissopal®	325211	Plastics Material and Resins	2007
BASF SE	DE	Polyamide (PA6) plant Ultramid®	325211	Plastics Material and Resins	2008
BASF SE	DE	"AEF3" Acrylates plant	325211	Plastics Material and Resins	2012
BASF SE	DE	Styrol plant	325211	Plastics Material and Resins	2012
BASF SE	DE	Acrylic homopolymers plant	325211	Plastics Material and Resins	2012
Bayer Material Science	US	polymers and high performance plastics complex	325211	Plastics Material and Resins	2007 & 2008
Borealis Group	AT	Low Density Polyethylene (LDPE) production	325211	Plastics Material and Resins	
Borealis Group	AT	Polyethylene (PE) production, based on Borealis' <b>PE4</b> BORSTAR multimodal technology	325211	Plastics Material and Resins	
Borealis Group	AT	Polypropylene (PP) production <b>PP2</b>	325211	Plastics Material and Resins	
Borealis Group	AT	Polypropylene (PP) production <b>PP3</b>	325211	Plastics Material and Resins	
Borealis Group	AT	Polypropylene (PP) production <b>PP5</b>	325211	Plastics Material and Resins	
Borealis Group	SE	Materials handling in Low Density Polyethylene (LDPE) production	325211	Plastics Material and Resins	
Cheil Industries,	KR	Production of ABS, PS, SAN, EP and EPS compound	325211	Plastics Material and Resins	2003

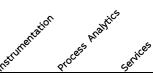
Automatio	n			Migration	Electrifico	Instrumer	Process	Services		
800xA	Freelance	Integr. safety	Batch Mgmt.						Other	Ext.Apprv
х			х							×
х			х						800xA expansion	х
Х										Х
Х			Х							X
х										х
Х				х					Modernization and expansion of heritage ABB DCS Advant OCS	
Х	Х								On top of a Freelance DCS	
х			х	х					Replacing ABB DCS DCI System Six (Sentinel)	
x		х							Modernization of operator level of heritage ABB DCS Infi 90 (Sentinel)	
									ABB DCS Infi 90	
Х										
Х									Replacing ABB heritage DCS	
Х				х					MOD300 Replacing ABB heritage DCS	
Х				х					Advant/MOD300 (Sentinel) Heritage ABB DCS MOD300 and	
Х		х		х					SIS based on SC Controller w/ TRIO modules and Triplex TMR	
х		х				х				
Х										
	Х									
Х										
	X									
	Х								Revamping and expansion of	
Х				X					ABB heritage DCS Advant / MOD300 (Sentinel)	
							x		ABB MOD300 DCS and on-line	
									process analysers	
X		Х	X							
X			x							
Х									Modernization of ABB DCS	
									Advant / MOD300 Replacing ABB heritage DCS	
Х				Х					Harmony / Infi90	
X	Х			X					Replacing Honeywell TDC3000	
х			х	х					Replacing heritage ABB DCS MOD300	
	х									
х				Х					2011 replacing Simatic PCS7 in Glissopal plant area	х
Х										Х
х			х	х					Replacing ABB heritage DCS Contronic P	х
х				х					Replacing ABB heritage DCS Maestro UX	х
х				х					Replacing Siemens heritage DCS Teleperm M	×
х			х	х					Replacing ABB heritage DCS Advant / MOD300	
									ABB Melody DCS	
									ABB Melody DCS	
		х							ABB Melody DCS	
									ABB Melody DCS	
									ABB Melody DCS	
х										
									ABB DCS	





Client / EPC or SI	Country	Application	NAICS	Chemical Category	Start-up
Chevron Phillips Chemical Co.,	US	Low density PE (LDPE) plant	325211	Plastics Material and Resins	2008 & 200
Cray Valley	IT	Polyester production plant	325211	Plastics Material and Resins	2011
Dow AgroSciences	IT	Uniform particle size copolymers plant	325211	Plastics Material and Resins	2011
Dow Chemical Company	ES	Octene Production plant	325211	Plastics Material and Resins	2005
DOW Olefinverbund GmbH	DE	Ethylene cracker	325211	Plastics Material and Resins	2008
DSM NeoResins	ES	Resins production	325211	Plastics Material and Resins	
DSM Resins	TW	Resins production	325211	Plastics Material and Resins	2009
DuPont	US	Plastic film production (QSC application)	325211	Plastics Material and Resins	
DuPont	GB	Polyester (PE) production	325211	Plastics Material and Resins	
Eastman Chemical	NL	Resin	325211	Plastics Material and Resins	-2016
Formosa Plastics Corporation	CN	Polystyrene plant	325211	Plastics Material and Resins	2005
Formosa Chemical & Fiber Corp.,	TW	Polystyrene plant PS3	325211	Plastics Material and Resins	
Formosa Chemical & Fiber Corp.	VN	Polymerization unit, recovery unit, spin machines control, and utilities for nylon fiber plant	325211	Plastics Material and Resins	2010
Georgia Gulf Corporation	US	18 reactors, batch control	325211	Plastics Material and Resins	2002
Grupo IDESA Petroquimica	MX	Polystyrene Lines 130 & 140	325211	Plastics Material and Resins	2008
Huntsman	GB	Polyurethane production	325211	Plastics Material and Resins	
NEOS ChlorVinyls	GB	Vinyl Production	325211	Plastics Material and Resins	
Lubrizol	US	Batch chlorination, liquid & dry product blending	325211	Plastics Material and Resins	
Lucite International	SG	Methyl Methacrylate	325211	Plastics Material and Resins	2008
LyondellBasell	DE	High density polyethylene (HDPE) pproduction	325211	Plastics Material and Resins	2007
NOVA Chemicals	NL	Polystyrene production line	325211	Plastics Material and Resins	2005
NOVA Chemicals	US	ARGERolystrene / 30% Polyethylene Interpolymer)	325211	Plastics Material and Resins	
Noveon	US	Specialty polymer pilot plant	325211	Plastics Material and Resins	
PA Resins	SE	Phenolic and amino resin	325211	Plastics Material and Resins	2007
PetroChina	CN	Polyethylene Unit	325211	Plastics Material and Resins	
Petroquimica Cuyo	AR	Polypropylene (PP) plant	325211	Plastics Material and Resins	2006
Polimeri Europa	IT	Polyethylene plant	325211	Plastics Material and Resins	
Pooyesh Petrochemical Company	IR	High Density Polyethylene (HDPE) Pilot Plant	325211	Plastics Material and Resins	
PTT Chemical	тн	Ethylene / Propylene complex	325211	Plastics Material and Resins	2009-2012
Qenos Plastics Manufacturing	AU	Polymer manufacturing	325211	Plastics Material and Resins	2006
Revertex Chemicals (Pty) Ltd	ZA	Monomer (Plastics) Production	325211	Plastics Material and Resins	2007
Styrolution	SE	Polystyrene production	325211	Plastics Material and Resins	2003
Tarkett	SE	Production of plastic floors, blending station	325211	Plastics Material and Resins	
Senmin	ZA	Tailing Treatment Polymers plant expansion	325211	Plastics Material and Resins	2008
Senmin	ZA	Xanthate* production expansion	325211	Plastics Material and Resins	2008
Sichuan Chemical Works Ltd.	CN	Melamine plant	325211	Plastics Material and Resins	
Thai Petrochemical Industry	TH	Polypropylene (PP) plant	325211	Plastics Material and Resins	
Titan Chemicals	MY	Polyethylene Terephthalates (PET) plant	325211	Plastics Material and Resins	2006
Fotal Petrochemical	FR	linear polyethylene production plant	325211	Plastics Material and Resins	2009
Victrex Limited	GB	Polyether Ether Ketone (PEEK) polymer manufacturing	325211	Plastics Material and Resins	

Automati	on			Night the the the store instrumentation	process service
800xA	Freelance	Integr. safety	Batch Mgmt.		Other Ext.Appro
х				Х	Replacing ABB heritage DCS MOD300
		х			ABB DCS Industrial IT
х		х		Х	Replaces heritage ABB DCS X Contronic P
х		х			X
х		Х		Х	Upgrading Contronic P solution with Maestro UX
					ABB DCS Industrial IT
х				х	Upgrading and expanding heritage ABB DCS System Six using Sentinel
х					
х					
х				Х	Replacing DCI System Six
х					
					ABB Advant OCS / MOD300
х	Х				
х			х		Front End Engineering Design (FEED) study
	Х				
					ABB DCS
х					
х			Х		
х					
х				Х	For Melody HSI revamp/modernization
х		х			
х			х		
х			Х	X	Upgrading Emerson RS 3 system
					ABB Advant OCS / MOD300
х					
Х					
	Х				Replacing ABB heritage DCS
Х				Х	Harmony Infi 90 (Sentinel) Replacing ABB heritage DCS
Х				Х	MOD300
	Х		Х		Upgrading ABB heritage DCS
х					Upgrading ABB heritage DCS Advant OCS
Х			Х	Х	Replacing Siemens S5 PLC
			Х		
	Х				
	Х				
					ABB Advant OCS / MOD300
Х		х		Х	Upgrading ABB heritage DCS Harmony consoles
х			х	х	Revamping ABB heritage DCS Advant / MOD300



Client / EPC or SI Count		Application	NAICS	Chemical Category	Start-up
Vinnolit	DE	PVC Production	325211	Plastics Material and Resins	
Vinnolit	DE	PVC Production	325211	Plastics Material and Resins	
Yanbu National Petrochemical Company	SA	Sequence application Automation solution for Linear Low Density Polyethylene (LLDPE) catalyst process	325211	Plastics Material and Resins	2012
Zhongyanjilantai Salt Chemical Group	CN	PVC production, 400k t/yr	325211	Plastics Material and Resins	2007
Synthetic Rubber					
PT BASF	ID	Latex MSDS plant, 80kt/yr	325212	Synthetic Rubber	2011
KarboChem	ZA	Synthetic Latex Production, Migration	325212	Synthetic Rubber	2008
KarboChem	ZA	Synthetic rubber production, compressor surge-control	325212	Synthetic Rubber	2008
Lanxess Elastômeros do Brasil	BR	Nitrile synthetic rubber production	325212	Synthetic Rubber	
LG MMA	KR	Polymethyl methacrylate & acrylic glass facility	325212	Synthetic Rubber	2011
Polimeri Europa	US	Rubber production	325212	Synthetic Rubber	
Polymer Latex	DE	Latex - synthetic rubber production	325212	Synthetic Rubber	
Polymer Latex	DE	Latex - synthetic rubber production	325212	Synthetic Rubber	
Sinopec Baling Petrochemical Co. Ltd.	CN	Styrene-Butadiene Thermoplastic Elastomer SBS	325212	Synthetic Rubber	2012
Synthetic Fibers (cellulosic and noncellulosic)					
Asia Pacific Fibers	ID	Polymer / polyester fiber production	325220	Synthetic Fibers (cellulosic and	2011
	IN		325220	noncellulosic) Synthetic Fibers (cellulosic and	2006
		Continuous polymerization of synthetic yarn, CP4 plant Continuous polymerization of synthetic yarn, new CP7 plant	325220	noncellulosic) Synthetic Fibers (cellulosic and	2006
Reliance Industries	IN		325220	noncellulosic) Synthetic Fibers (cellulosic and	2006
Reliance Industries	IN	Continuous polymerization of synthetic yarn, new CP10 plant	325220	noncellulosic) Synthetic Fibers (cellulosic and	2006
		Continuous polymerization of synthetic yarn, new CP11 plant Pulp production in the world's largest chemical cellulose		noncellulosic) Synthetic Fibers (cellulosic and	
Sappi	ZA	plant	325220	noncellulosic)	2008
Fertilizers (Nitrogenous and Phospahtic)		Plant optimization and expansion of potash (potassium		Fortilizors (Nitrogenous and	
Arab Potash Company (APC)	JD	carbonate) production complex	32531x	Fertilizers (Nitrogenous and Phospahtic)	2009 & 2010
Arab Potash Company (APC)	JD	Material handling system for warehouse of potash (potassium carbonate) production	32531x	Fertilizers (Nitrogenous and Phospahtic)	2009
El-Djazairia El-Omania Lil Asmida SpA	DZ	Load management system (LMS) for Arzew fertilizer complex (AOFP)	32531x	Fertilizers (Nitrogenous and Phospahtic)	2010
Ballance Agri-Nutrients	NZ	Fertilizer production, burner management	32531x	Fertilizers (Nitrogenous and Phospahtic)	2005
Borealis Agrolinz Melamine	AT	Ammonia production "NH1"	32531x	Fertilizers (Nitrogenous and Phospahtic)	
Conoco Phillips	DE	Desulfurization process	32531x	Fertilizers (Nitrogenous and Phospahtic)	2004
EFC El-Ain El-Sokhnna	EG	Ammonia urea fertilizer production line EFC I	32531x	Fertilizers (Nitrogenous and Phospahtic)	
EFC El-Ain El-Sokhnna	EG	Ammonia urea fertilizer production line EFC II	32531x	Fertilizers (Nitrogenous and Phospahtic)	
EFC El-Ain El-Sokhnna	EG	Expansion of ammonia urea fertilizer production line EFC II	32531x	Fertilizers (Nitrogenous and Phospahtic)	2010
EFC Alexandria	EG	Ammonia Urea Fertilizer Plant	32531x	Fertilizers (Nitrogenous and Phospahtic)	2005
EFC Helwan	EG	Ammonia Urea Fertilizer Plant	32531x	Fertilizers (Nitrogenous and Phospahtic)	2007
Haldor Topsoe	DK	desulphurization of ammonia process (Wet-gas Sulphuric Acid unit)	32531x	Fertilizers (Nitrogenous and Phospahtic)	2003
ICI	GB	Nitric Acid (production and storage)	32531x	Fertilizers (Nitrogenous and	
Invista	SG	Nitric acid production	32531x	Phospahtic) Fertilizers (Nitrogenous and Phospahtic)	2009
Kemira	DK	Fertilizer Production	32531x	Phospantic) Fertilizers (Nitrogenous and Phospahtic)	
Nagarjuna Fertilizers & Chemicals Ltd	IN	Ammonia and urea plant	32531x	Fertilizers (Nitrogenous and	2011
Nantong Fertilizer Plant	CN	Potassium Fertilizer Production	32531x	Phospahtic) Fertilizers (Nitrogenous and	
OGC and SIUCI	ом	Power mgmt system for Ammonia production complex	32531x	Phospahtic) Fertilizers (Nitrogenous and	2008
Omnia Fertilizers	ZA	Fertilizer production	32531x	Phospahtic) Fertilizers (Nitrogenous and	
Petrobras Petrochemicals	AR	Ammonia and Urea Plant	32531x	Phospahtic) Fertilizers (Nitrogenous and	
	ID			Phospahtic) Fertilizers (Nitrogenous and	2008
PT Petrokimia Gresik		Fertilizer production	32531x	Phospahtic) Fertilizers (Nitrogenous and	2008
SKW Piesteritz	DE	"HOKO" nitric acid plant in fertilizer production complex	32531x	Phospahtic)	
Sociedad Quimica y Minera de Chile	CL	Potassium nitrate (KNO3) plant with production capacity 400k t/yr	32531x	Fertilizers (Nitrogenous and Phospahtic)	2010
West China Coking & Gas Co.	CN	Methanol-Ammonia plant	32531x	Fertilizers (Nitrogenous and Phospahtic)	2008
/unnan Three Circles Chemical Co	CN	Diammonium Phosphate (DAP) production, 1.2mio t/yr	32531x	Fertilizers (Nitrogenous and Phospahtic)	2006
Yunnan Three Circles Chemicals	CN	Phosphate plant, 800k t/yr	32531x	Fertilizers (Nitrogenous and Phospahtic)	2007
	PL	Fertilizer plant	32531x	Fertilizers (Nitrogenous and	2008

Migration Automation Integr. safety Batch 800xA Freelance Mgmt. Х х х Х х х х х Х Х Х х Х х Х Х х Х х х х Х х х х х Х х х х Х Х х х Х Х х х х х х х х Х х х х х х х Х х х Х х х

×	ation	nalytics
Instrument	Process	Arabitis

Other

Ext.Apprv

		Other	Ext.Apprv
Х		ABB DCS	
		Migrating legacy Modicon PLC/SCADA	х
		Replacing legacy controls	
		For ABB heritage DCS Contronic P	
		ABB DCS Industrial IT	
		ABB DCS	
		ABB DCS	
		Replacing operator level of 3 ABB heritage Advant DCSs	
		For ABB heritage DCS MOD300	
х		Instrumentation, MV/LV switchgears, DC drives	
		switchgeals, DC unves	
		ABB Symphony/Melody DCS	
X	X		
		ABB Advant OCS	
Х			
		ABB DCS Industrial IT	
		Upgrading ABB heritage DCS MOD300 Advant system	
		Replacing ABB heritage DCS MOD300	
		Compact 800	
		Expansion of existing Emerson Provox DCS	
		Engineering & Procurement and	
		Construction (EPC) incl. MAV + MEV	

Client / EPC or SI	Country	Application	NAICS	Chemical Category	Start-up
	country	Application	NAICS	chemical category	Start-up
Pesticides, Herbicides & Agrochems		Deadlachter a far a bhaide a far anns a f Abra an ' a Dilea			
Atanor S.A. / Albaugh Inc.	US	Production of pesticides (in parts a copy of Atanor´s Pilar plant in Argentina)	325320	Pesticides, Herbicides & Agrochems	2005
BASF SE	DE	Strobilurine (fungicide) "BAS500F" plant,	325320	Pesticides, Herbicides & Agrochems	2002 & 2009
Cheminova	DK	Production of Pesticides and Insecticides	325320	Pesticides, Herbicides & Agrochems	
Clariant	DE	Pesticide production	325320	Pesticides, Herbicides & Agrochems	
Paints & Coatings					
Alcro-Beckers	SE	New production site for water and latex based paint	325510	Paints & Coatings	
Asian Paints Ltd.	IN	New plant for water- and solvent-based, and machine paint	325510	Paints & Coatings	
BASF	AU	Dispersions complex	325510	Paints & Coatings	2008
BASF	CN	XSB and acrylate dispersion plant "Flores", 100k t/yr	325510	Paints & Coatings	2012
BASF	CN	Coating / paint manufacturing plant (waterborne basecoat)	325510	Paints & Coatings	2013
BASF SE	DE	Polymer dispersions for paper industry	325510	Paints & Coatings	2000
BASF SE	DE	Mixing and milling of dispersions	325510	Paints & Coatings	2008
BASF	ID	Ethylene dispersion plant	325510	Paints & Coatings	2003
Blanchon-Syntilor	FR	Bainttl&warnish production	325510	Paints & Coatings	
Brillux Paint	DE	Paint plant and tank farm	325510	Paints & Coatings	2003-2004
Clariant	МХ	Emulsion plant	325510	Paints & Coatings	
Finndisp	FI	Polymer dispersion plant with 4 process lines	325510	Paints & Coatings	
CI Glidden Paints	US	Blending line for paints	325510	Paints & Coatings	
Lubrizol	CN	Latex/Urethane plant	325510	Paints & Coatings	2008
Adhesives					
AkzoNobel Casco Adhesives	SE	Adhesives production	325520	Adhesives	2010
Dynea	GB	Urea-Formaldehyde (UF) resins and adhesives production	325520	Adhesives	
ICAP-SIRA Chemicals and Polymers	IT	Adhesives production	325520	Adhesives	2009
SPREA MISR	EG	Dry UF Glue production	325520	Adhesives	2008
SPREA MISR	EG	Urea Formaldehyde resins production	325520	Adhesives	2009
Xerox Corp.	US	Emulsion Aggregation (EA) Toner production plant	325520	Adhesives	2007
Toilet Preparation Manufacturing					
Cosmetics	ZA	Cosmetics production	325620	Toilet Preparation Manufacturing	
Riemann & Co	DK	Aluminum oxide plant for antiperspirant products	325620	Toilet Preparation Manufacturing	2006
Explosives					
Societe Suisse des Explosifs (SSE)	СН	Pentaerythritoltetranitrat (Nitropenta or PETN) production	325920	Explosives	2007
All Other Miscellaneous Chemical Product and Preparation Manufacturing					
BASF SE	DE	Carotenoid "Panton" plant, pro-vitamin A (beta-carotene), lycopene and lutein	325998	Other Misc. Chemicals	2008 - 2012
Bayer	AR	Healthcare	325998	Other Misc. Chemicals	2000
Columbian Chemicals	BR	Turbo generator (supplied by ABB) in a co-generation plant	325998	Other Misc. Chemicals	
DSM Nutritional Products	DE	of a chemicals production complex Fine chemicals production	325998	Other Misc. Chemicals	2010-2011
Process Analyser Solutions		-			
BASF / FINA (JV)	US	Naphta Steam Cracker	325110	Petrochemicals	
SBPC and SLIC	CN	Integrated Isocyanates (MDI/TDI) complex	325211	Plastics & Resins	
Victrex Limited	GB	Polyether Ether Ketone (PEEK) polymer manufacturing	325211	Plastics Material and Resins	

				-	ation	ration	analyti		
Automatio	n			Migration F	lectification inst	uner. proc	ess Ana. service	,	
800xA	Freelance	Integr.	Batch					Other	Ext.Apprv
		safety	Mgmt.						<u> </u>
~			X						
Х			Х					Replaces ABB heritage DCS	
X				х				Symphony Replace heritage ABB DCS	Х
Х				Х				MasterView operator workplaces	
	Х								
~			X			~			
x			X			Х		And CPM (MES)	
x				x				Partial ugrade of ABB heritage	×
×				^				DCS Infi90	×
×			x					And LV MCCs	×
~			~					ABB DCS Industrial IT	x
	х								х
х									х
х									
х			х						
х									
Х			Х	Х				Replacing Omron PLC	
Х									
Х									
								Replacing Freelance DigiBatch	
х				х				system and IP21, and new Freelance controllers	
х			х	х				Replacing ABB heritage Sattcon system	
								Replacing operator level of ABB	
х			Х	х				heritage DCS DCI System Six (Sentinel)	
	Х								
	Х								
Х			Х						
Y	Х		X						
Х			Х						
	х								
x				х				Replacing heritage ABB DCS	×
								Maestro UX / Contronic P Replacing ABB heritage DCS	~
X			х	х				Advant OCS Upgrade of ABB heritage Advant	-
Х				Х				OCS	
х				х				Replacing heritage ABB DCS Contronic P (Sentinel)	
							Х	ABB Process Analyzer systems	Х
							X	Process Analytical Systems	Х
Х		х			Х	Х	Х		







Client / EPC or SI	Country	Application	NAICS	Chemical Category	Start-up
Advanced Control Solutions					
AdvanSA	GB	Pure Terephthalic Acid (PTA) plant, 550,000 t/yr, secondary Oxidation Control and stable control of Crude TA slurry for PTA production	325211	Plastics Material and Resins	
TVK	HU	Polyolefins	325110	Petrochemicals	
MAV/MAC & MEV/MEC					
Alcro-Beckers	SE	New production site for water and latex based paint			
BASF Chemicals Co. Ltd. (BACH)	CN	Poly-Tetrahydrofuran (PolyTHF) and poly-isocyanate (Basonat®) plant			2003 & 2009
BASF-YPC Co. (BYC)	CN	"IPS2" expansion of Integrated Project Site (complex with steam cracker and 9 plants) with 10 new plants			2010
BASF	CN	MDI (methylene diphenyl diisocynate) complex with 5 plants			2014
BASF SE	DE	Methylglycinediacetic Acid (MGDA) plant, Trilon M®			2009
BASF	KR	TDI, DNT + CCD complex			2003
BASF	US	Manufacturing of Ni-Co-Mn cathode materials for Li-ion batt			2012-2014
CropEnergies	DE	Bio-ethanol and bio-diesel plant, 260,000 m³/yr			2005
LDK Solar Co. Ltd.	CN	2nd Polysilicon / trichlorosilane (TCS) plant	NAICS 325188	Basic Inorganic Chemicals	
MTP HPPO Manufacturing Company	ТН	Hydrogen-peroxide-to-propylene oxide (HPPO) production	325199	All Other Basic Organic Chemicals	2011
Sadara Chemical Company	SA	Largest petrochemical complex ever built	325199	All Other Basic Organic Chemicals	2015
Sappi	ZA	Pulp production in the world's largest chemical cellulose plant			2008
Sociedad Quimica y Minera de Chile	CL	Potassium Nitrate plant			2010
Victrex Limited	GB	Polyether Ether Ketone (PEEK) polymer manufacturing			
ABB Full Service™					
Braskem	BR	Petrochemicals and Vinyl production units	325211	Plastics Material and Resins	
PolymerLatex	GB				
Calvav Induna	BR	Caustic Soda, Chlorine, VCM, PVC and HDPE			
Solvay Indupa	BIC	caustic soud, chlorine, veri, rive and ribrie			
Global Consulting: Engineering Services	Dix				
Global Consulting: Engineering Services	GB	New Sodium Hypochlorite storage and loading facility			
					2010
Global Consulting: Engineering Services	GB	New Sodium Hypochlorite storage and loading facility New Potassium Nitrate plant with production capacity 400k			2010
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile	GB	New Sodium Hypochlorite storage and loading facility New Potassium Nitrate plant with production capacity 400k	325xxx	Azol	2010 2012
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others	GB CL	New Sodium Hypochlorite storage and loading facility New Potassium Nitrate plant with production capacity 400k t/yr	325xxx	Azol	
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE	GB CL	New Sodium Hypochlorite storage and loading facility New Potassium Nitrate plant with production capacity 400k t/yr	325xxx 324110	Azol Petroleum Refineries	
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Química y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil	GB CL DE	New Sodium Hypochlorite storage and loading facility New Potassium Nitrate plant with production capacity 400k t/yr Azole			
Global Consulting: Engineering Services INEOS ChlorVinyIs Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf.	GB CL DE EG KR	New Sodium Hypochlorite storage and loading facility New Potassium Nitrate plant with production capacity 400k t/yr Azole Distillation plant Alkylation & SAR	324110 324110	Petroleum Refineries Petroleum Refineries	2012
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals	GB CL DE EG KR UK	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen	324110 324110 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf.	2012 2009
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o.	GB CL DE EG KR UK SK	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan	324110 324110 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf.	2012 2009 2009 2007
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd.	GB CL DE EG KR UK SK HU	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech	324110 324110 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf.	2012 2009 2009 2007 2005 & 2006
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o.	GB CL DE EG KR UK SK	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan	324110 324110 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf.	2012 2009
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd.	GB CL DE EG KR UK SK HU	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech	324110 324110 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf.	2012 2009 2009 2007 2005 & 2006
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd. Gedeon Richter Ltd.	GB CL DE EG KR UK SK HU HU	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech	324110 324110 32541x 32541x 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf. Pharmaceutical and Med. Manuf.	2012 2009 2009 2007 2005 & 2006 2010
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd. Gedeon Richter Ltd. Janssen Leo Pharma	GB CL DE EG KR UK SK HU HU HU	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech         Biotech         Active Pharmaceutical Ingredients	324110 324110 32541x 32541x 32541x 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf.	2012 2009 2007 2005 & 2006 2010 2008
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd. Gedeon Richter Ltd. Janssen	GB CL DE EG KR UK SK HU HU HU IE	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech         Biotech         Active Pharmaceutical Ingredients         Pharmaceutical active ingredient	324110 324110 32541x 32541x 32541x 32541x 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf.	2012 2009 2007 2005 & 2006 2010 2008
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd. Gedeon Richter Ltd. Janssen Leo Pharma Merck, Sharp and Dohme Ltd.	GB CL DE EG KR UK SK HU HU HU IE DK	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech         Biotech         Pharmaceutical Ingredients         Pharmaceuticals	324110 324110 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf.	2012 2009 2007 2005 & 2000 2010 2008
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd. Gedeon Richter Ltd. Janssen Leo Pharma Merck, Sharp and Dohme Ltd.	GB CL DE EG KR UK SK HU HU IE DK IE IE IE	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech         Active Pharmaceutical Ingredients         Pharmaceuticals         Pharmaceuticals	324110 324110 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf.	2012 2009 2007 2005 & 2006 2010 2008 2006
Global Consulting: Engineering Services NEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASE SE Petroleum Refineries Amreya Petroleum Refining Company 5-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd. Gedeon Richter Ltd. Janssen Leo Pharma Merck, Sharp and Dohme Ltd. Merck, Sharp and Dohme Ltd. Sandoz Industrial Products Artificial and Synthetic Fibers and Filaments Manuf.	GB CL DE EG KR UK SK HU HU IE DK IE IE IE	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech         Active Pharmaceutical Ingredients         Pharmaceuticals         Pharmaceuticals	324110 324110 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf.	2012 2009 2007 2005 & 2006 2010 2008 2006
Global Consulting: Engineering Services INEOS ChlorVinyls Sociedad Quimica y Minera de Chile Others BASF SE Petroleum Refineries Amreya Petroleum Refining Company S-Oil Pharmaceutical and Med. Manuf. Aesica Pharmaceuticals Fermas s.r.o. Gedeon Richter Ltd. Gedeon Richter Ltd. Janssen Leo Pharma Merck, Sharp and Dohme Ltd. Merck, Sharp and Dohme Ltd. Sandoz Industrial Products Artificial and Synthetic Fibers and Filaments	GB CL DE EG EG KR UK SK HU HU HU IE IE IE IE IE IE IE	New Sodium Hypochlorite storage and loading facility         New Potassium Nitrate plant with production capacity 400k         t/yr         Azole         Distillation plant         Alkylation & SAR         Flurbiprofen         L-Tryptophan         Biotech         Active Pharmaceutical Ingredients         Pharmaceuticals         Pharmaceuticals         Pharmaceutical application	324110 324110 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x 32541x	Petroleum Refineries Petroleum Refineries Petroleum Refineries Pharmaceutical and Med. Manuf.	2012 2009 2007 2005 & 2006 2010 2008 2006

800xA	Freelance	Integr. safety	Batch Mgmt.	wigration	Hectificatio	Instrumentia	Process Aru	services	Other	Ext.Appr
		salety	Mgmt.						Replacing operator	
									ABB MOD300 DCS and on-line process analysers	
									Advanced Control on ABB MOD300 DCS	
x			Х			Х	×		MAV	x
^							×		MEV and MPAV	×
х					x		×		MAV incl. System 800xA (red.)	×
x					^	х	^		MAY Incl. System 600000 (red.)	×
,					X	~			MAV + MEV 83x ABB DCS	×
					X	Х			(Symphony) MAV with System 800xA (red.)	×
х					x	x			MAV + MEV	
					Х				MEC package	
х			х		х				800xA Simulator and LV electrical package	
									Main Automation Contract (MAC)	
х					x				(MAC)	
х				х	х				Engineering & Procurement and Construction (EPC) incl. MAV +	
				^					MEV	
Х		Х			Х		Х			
								х	ABB Full Service® Contract	
								x	ABB Full Service® Contract	
								х	ABB Full Service® Contract	
								х	ABB Engineering Services	
								х	Engineering & Procurement and Construction (EPC) incl. MAV + MEV	
Х				Х					Replacing Honeywell (AC870P)	
									Upgrading ABB heritage	
Х				Х					MOD300	
Х			Х							
х			x	х					For ABB heritage DCS MOD300	
x			~	^					T OF ABB HEITinge DCS MOD300	
x			x							
х			Х							
х				х					Replacing Emerson RS3 DCS system & 10 Klockner Moeller PLC systems	
Х			х	Х					Upgrading ABB SattLine	
				х					Upgrading ABB heritage DCS Advant MOD300	
Х				Х					Replacing Multibus consoles	
х			Х	х					Upgrading Conductor NT/ Chemflex (DCI)	
х				х					Migrating the Emerson Provox	
									system	

