



DESIGN PROJECT EXECUTION ENGINEERING SERVICES

## REFERENCE LIST



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# PLANTS: Ammonia

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Ammonia II Plant Revamping	Gas preparation and synthesis process. General concept, Basic Design, Detail Engineering	1992	Zakłady Azotowe "Puławy" S.A.	Poland
Process condensate degassing	Capacity – 29 mtpd General concept and spatial layout, Civil Engineering Design, Detail Engineering, operating manual, supervision	1999	ANWIL SA Włocławek	Poland
Comparative analysis of gascooling efficiency Medium – synthesis gas	Capacity – 88 000 Nm <sup>3</sup> /h General concept and spatial layout, Civil Engineering Design, Detail Engineering, operating manual	2000	ANWIL SA Włocławek	Poland
Process general concept – Ammonia unloading and storage station	Capacity 50 t NH <sub>3</sub> /day. General concept and spatial layout	2002	Zakłady Chemiczne LUBOŃ	Poland
Purification of carbon dioxide from Benfield Unit	Detail Engineering in all disciplines, detail engineering documentation for vessels, author's supervision, as-built documentation	2003	ANWIL SA Włocławek	Poland
Syn-gas cooling section revamping in Ammonia Plant	Replacement of drip coolers with air coolers. Civil Engineering Design, Detail Engineering	2006	Zakłady Azotowe "Puławy" S.A.	Poland
Tank and process unit for ammonia water storage	Pressureless tank with nitrogen cushion, with no ammonia emission to atmosphere. Civil Engineering Design, Detail Engineering.	2006	BIOTON S.A. Warsaw	Poland
Ammonia unloading station capacity boost (Ammonia Plant)	Detail Engineering	2007	Zakłady Azotowe "Puławy" S.A.	Poland
Liquid ammonia storage 15 000 t	Civil Engineering Design	2007	TRANS-AMMIAK Warsaw	Poland
Revamping of the cooling system for ammonia synthesis section	Environment impact report, Civil Engineering Design, Detail Engineering	2008	Zakłady Azotowe "Puławy" S.A.	Poland
Refurbishment of ammonia pre-heating and flashing facility	Civil Engineering Design, Detail Engineering	2008	Zakłady Azotowe "Puławy" S.A.	Poland
Revamping of TVA internals in ammonia synthesis convertor	Detail Engineering, other engineering services.	2008	Zakłady Azotowe "Puławy" S.A.	Poland
Potash lye cooler	Detail engineering documentation. Process by INS Puławy, Poland	2008	Zakłady Azotowe "Puławy" S.A.	Poland
Liquid ammonia storage 15 000 t	General concept	2009	Undisclosed	Poland
Revamping of TVA internals in ammonia synthesis convertor	Detail Engineering, other engineering services.	2009	Zakłady Azotowe "Puławy" S.A.	Poland
Revamping of the cooling system for ammonia synthesis section	Environment impact report, Civil Engineering Design, Detail Engineering	2009	Zakłady Azotowe "Puławy" S.A.	Poland
Revamping of the unit for CO <sub>2</sub> removal from process gas for ammonia production	Civil – detail engineering documentation. Process by INS Puławy, Poland	2010	Zakłady Azotowe "Puławy" S.A.	Poland
Oxygen plant - ammonia-urea production line revamping	Integration of the new oxygen plant with existing installations. Two trains of overall capacity 1700 mtpd. General concept, Civil Engineering Design, Detail Engineering, procurement	2010	Zakłady Azotowe "Puławy" S.A.	Poland
Procurement and housing for a turbocharger 45 000 m <sup>3</sup> /h	Civil Engineering Design, Detail Engineering, procurement	2011	Zakłady Azotowe "Puławy" S.A.	Poland
Ammonia unloading and storage plant providing feed for 3 production lines	Detail Engineering	2013	Stalprodukt S.A.	Poland
Liquid ammonia storage 15 000 t	Civil Engineering Design, Detail Engineering, registration file procurement	2014	Grupa Azoty, Zakłady Azotowe "Puławy" S.A.	Poland
Design documentation of purge-gas separation by means of membranes	General Concept, Civil Design, Detail Engineering, proposal analysis	in progress	Grupa Azoty Zakłady Azotowe Kędzierzyn S.A.	Poland

# PLANTS: Urea

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Urea Prilling Tower	Capacity 2000 mtpd, Basic Design, Civil Design Engineering, Detail Engineering in all disciplines.	1993	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Capacity – 2 000 mtpd of granulated product Basic Design, Detail Engineering	1993	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Capacity – 1 400 mtpd of granulated product Detail Engineering, procurement	1993	CHEMIE LINZ	Austria
Detail Engineering for Urea Synthesis Unit	Capacity – 1 700 mtpd, Cooperation – TECNIMONT (Italy), Civil Engineering Design, Detail Engineering	1998	Zakłady Azotowe "Puławy" S.A.	Poland
Urea solution filtration for melamine production	Detail Engineering, supervision	1999	Zakłady Azotowe "Puławy" S.A.	Poland
Bulk Fertilizer Storage and UAN Terminal	UAN Storage capacity – 27 000 t., Bulk Fertilizer storage capacity – 140 000 m <sup>3</sup> , Loading/Unloading capacity – 2000 mtpd, Civil Engineering Design, Detail Engineering	1999	Bałtycka Baza Masowa – Port Gdynia	Poland
Hydrolysis section processing capacity boost	Detail Engineering, supervision	1999	Zakłady Azotowe "Puławy" S.A.	Poland
Integration of melamine plant with urea plants	1. Integration of Melamine II with two TOYO lines 2. Integration of Melamine III with two TOYO lines Basic Design, Detail Engineering, other engineering services	2000 2003	Zakłady Azotowe "Puławy" S.A.	Poland
Integration of melamine plant with urea plants	1. Integration of Melamine II with IDR acc. to TECNIMONT process 2. Integration of Melamine III with IDR Detail Engineering, other engineering services	2000 2003	Zakłady Azotowe "Puławy" S.A.	Poland
Ammonia emission reduction through acid absorption	Basic Design, Detail Engineering, other engineering services	2001	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Feasibility Study	2003	Undisclosed	Poland
Production unit for granulated fertilizers (on the basis of waste materials)	Environment impact report Civil Engineering Design with Building Permit	2006	Zakłady Chemiczne ALWERNIA S.A.	Poland
AdBlue production unit	AdBlue capacity increase from 30 000 mtpy to 100 000 mtpy. Civil Engineering Design, Detail Engineering, Environment impact report with an environment conditions application.	2008	Zakłady Azotowe "Puławy" S.A.	Poland
TOYO urea plant revamping	Revamping (capacity boost) of TOYO urea production trains, Civil, Engineering Design, Detail Engineering in all disciplines according to Basic Design by Urea Casale, Supervision, Start-Up.	2009	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Basic Design, Detail Engineering, procurement, operating manual, supervision, other engineering services	2009	SABIC	Saudi Arabia
The concept for production line of granulated fertilizer with supplements	General concept	2009	Undisclosed	Undisclosed
IDR Urea Plant revamping acc. to Urea Casale Basic Design	IDR urea plant production capacity increase. Civil Engineering Design, Detail Engineering, other engineering services	2010	Zakłady Azotowe "Puławy" S.A.	Poland
The concept for production line of liquid fertilizer with supplements	General concept	2011	Zakłady Azotowe "Puławy" S.A.	Poland
Urea plant revamping	Feasibility Study	2013	Grupa Azoty, Zakłady Azotowe Kędzierzyn S.A.	Poland
Production plant of solid fertilizers based on urea and ammonium sulphate.	General Concept, Cost Estimate, Civil Design, Environment Impact Report, Procurements, Detail Engineering, Supervision	2014	Grupa Azoty Zakłady Azotowe "Puławy" S.A.	Poland

## PLANTS: Urea

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Fertilizer Research Center	Detail Engineering	2014	New Chemical Syntheses Institute in Puławy	Poland
Technical Grade Urea plant	Process Design, Basic Design, Detail Engineering, Procurement, Supervision	2014	SABIC	Saudi Arabia
Solid fertilizers production plant with storage and loading facilities	Civil Design and Environmental Impact Report, Detail Engineering in all disciplines for the storage and loading complex	2014	Zakłady Azotowe "Puławy" S.A.	Poland
UAN production plant	General Concept, Civil Design, Detail Engineering, As-Built Documentation	2015	Grupa Azoty Zakłady Azotowe Kędzierzyn S.A.	Poland
Urea Plant Revamping	General Concept, Civil Design, Detail Engineering, Supervision	2015	Grupa Azoty Zakłady Azotowe Kędzierzyn S.A.	Poland

## PLANTS: Melamine

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Melamine Plant II	Capacity – 30 000 mpty, Cooperation with Eurotecnica (Italy) Basic Design, Detail Engineering, operating manual, other engineering services	2000	Zakłady Azotowe "Puławy" S.A.	Poland
Melamine transport, cooling and storage system	Detail Engineering, supervision, procurement, other engineering services	2000	Zakłady Azotowe "Puławy" S.A.	Poland
Vessels for Melamine II and III	Equipment submitted to UDT supervision Detail Engineering	2000 2003	Zakłady Azotowe "Puławy" S.A.	Poland
Extension of Urea solution filtration section for Melamine II	Civil Engineering Design, Detail Engineering	2001	Zakłady Azotowe "Puławy" S.A.	Poland
Melamine Plant III	Capacity – 30 000 mpty, Cooperation with Eurotecnica (Italy) Civil Engineering Design, Detail Engineering, operating manual, other engineering services	2003	Zakłady Azotowe "Puławy" S.A.	Poland
Revamping and intensification of Melamine I Plant	Detail Engineering for Instrumentation and DCS.	2003	Zakłady Azotowe "Puławy" S.A.	Poland
Melamine I Plant revamping - Melamine desorption Section	Revamping of automation and instrumentation with connection to DCS. Detail Engineering	2005	Zakłady Azotowe "Puławy" S.A.	Poland
Melamine Recovery Unit (MRU)	Civil Engineering Design, Detail Engineering, other engineering services	2006	Zakłady Azotowe "Puławy" S.A.	Poland
Dynea Trzemeszno Resin production plant refurbishment - adding a new process line	Civil Engineering Design, Detail Engineering	2008	Zakłady Mechaniczno-Antykorozyjne "Metalko"	Poland
Revamping and intensification of Melamine I Plant	Environment impact report, Civil Engineering Design, Detail Engineering	2010	Zakłady Azotowe "Puławy" S.A.	Poland

# PLANTS: Ammonium nitrate

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Urea solution transport for UAN and the production unit	Connection of Urea and Ammonia Plants to UAN production unit. Heat traced urea pipeline – approx. 2 000 m long. Basic Design, Detail Engineering.	1987	Zakłady Azotowe “Puławy” S.A.	Poland
Ammonium nitrate prill tower exit air CLEANING UNIT	Capacity - 3 x 1 115 mtpd of granulated product Basic Design, Detail Engineering	1988	Zakłady Azotowe “Puławy” S.A.	Poland
Ammonium nitrate prill tower exit air cleaning unit	Capacity – 1 200 mtpd of granulated product Basic Design, Detail Engineering	1992	Zakłady Azotowe “Włocławek”	Poland
AN Granulation unit	Capacity – 3 x 1 115 mtpd of granulated product, Vibro-rotary Bucket installation	1998	Zakłady Azotowe “Puławy” S.A.	Poland
Magnesium Nitrate Solution Production Unit as addition to AN	7 mtpd of 50% Mg(NO <sub>3</sub> ) <sub>2</sub> solution upstream of an AN plant of capacity 3x1 115 mtpd of granulated product. Patented process, Basic and Detail Engineering, Supervision over start-up	1998	Zakłady Azotowe “Puławy” S.A.	Poland
Bulk Fertilizer Storage and UAN Terminal	UAN Storage capacity – 27 000 t. Bulk Fertilizer storage capacity – 140 000 m Loading/Unloading capacity – 2000 Civil Engineering Design, Detail Engineering	1999	Bałtycka Baza Masowa – Port Gdynia	Poland
Revamping of ammonium nitrate bagging station	Detail Engineering, supervision	2001	Zakłady Azotowe “Puławy” S.A.	Poland
AN Packing and spedition unit	Capacity – 3 x 1 115 mtpd of granulated product	2002	Zakłady Azotowe “Puławy” S.A.	Poland
Nitro-chalk Storage in Fertiliser Complex	Nitro-chalk Storage with all facilities (transport, handling, storage, weighing, packing, loading, roads and yards). Capacity - 25 000 tons. General concept and spatial layout, Civil Engineering Design, Detail Engineering	2005	Zakłady Azotowe ANWIL SA	Poland
General concept for a production unit and off-sites for ammonium nitrate-based bulk fertilisers	Multi-option concept for fertiliser production unit and off-sites	2006	Zakłady Azotowe “Puławy” S.A.	Poland
Liquid fertilizers plant	General concept	2010	Undisclosed	Poland
Ammonium nitrate plant	HAZOP study	2010	Zakłady Azotowe ANWIL SA	Poland
Calcium nitrate production plant	Basic Design, Civil Engineering Design, Detail Engineering	2010	Ekoplon SA	Poland
The concept for production line of liquide fertilizer with supplements	General concept	2011	Zakłady Azotowe “Puławy” S.A.	Poland
Production plant of granulated fertilizer based on ammonium nitrate.	General Concept, Cost Estimate	2014	Grupa Azoty Zakłady Azotowe “Puławy” S.A.	Poland

## PLANTS: Caprolactam

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Caprolactam Plant 120 000 mtpy	Basic Design for Caprolactam Plant, project coordination. Basic Design of Lactam Unit.	1990	TONGYANG NYLON CO. LTD	Korea
Caprolactam Plant Revamping	Production capacity boost from 48 000 to 65 000 mtpy Basic Design, Detail Engineering, other engineering services	1998	Zakłady Azotowe "Puławy" S.A.	Poland
Utilization of flue gases from Hydroxylamine Plant	Thermal utilization General concept and spatial layout, Detail Engineering	2000	Zakłady Azotowe "Puławy" S.A.	Poland
Extension of storage and liquid caprolactam feed unit	Technical and Cost estimation for the Unit development	2001	Zakłady Azotowe "Puławy" S.A.	Poland
Caprolactam flaking production capacity boost	General concept and spatial layout, Detail Engineering, supervision	2003	Zakłady Azotowe "Puławy" S.A.	Poland
Hydroxylamine tank	Dismantle project Civil engineering Design Detail engineering documentation and registration file.	2005	Zakłady Azotowe "Puławy" S.A.	Poland
Vacuum distillation of acidic aqueous extract	Environment Impact Report, permits. Civil engineering Design, Detail Engineering	2006	Zakłady Azotowe "Puławy" S.A.	Poland
Feasibility study for hydroxylamine plant	Feasibility study	2007	GSFC	India
Extraction of of caprolactam with toluene	Process Design	2009	ICHP	Poland
Modernization of anone/anol distillation	Basic Design	2010	Undisclosed	Poland
Revamping of a benzene unloading facility	Civil, Detail Engineering	2010	Zakłady Azotowe "Puławy" S.A.	Poland
Revamping of a facility preparing the hydroxylamine sulphate solution for the oximation process	Detail Engineering	2010	Zakłady Azotowe "Puławy" S.A.	Poland
Revamping of a benzene unloading facility	Civil, Detail Engineering	2011	Zakłady Azotowe "Puławy" S.A.	Poland
Revamping of a facility preparing the hydroxylamine sulphate solution for the oximation process	Detail Engineering	2011	Zakłady Azotowe "Puławy" S.A.	Poland

## PLANTS: Peroxides

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Hydrogen Peroxide Plant	Civil Engineering Design Process Design by CHEMATUR	1995	Zakłady Azotowe "Puławy" S.A.	Poland
Production boost – Hydrogen Peroxide Plant revamping	Detail Engineering Process Design by CHEMATUR	1998	Zakłady Azotowe "Puławy" S.A.	Poland
60 % Hydrogen Peroxide unloading, storage and distribution unit	Unit process general concept. Horizontal tanks with piping and loading/unloading equipment, instrumentation and foundations. Detail Engineering	2004	International Paper - Kwidzyn Sp. z o.o. Kwidzyn	Poland
Hydrogen Peroxide Plant	Updating and verification of interlock/protection system Detail Engineering	2005	Zakłady Azotowe "Puławy" S.A.	Poland



## PLANTS: Sulphur and its compounds

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Ammonia/Phosphoric acid dosing and storage Unit	Civil Engineering Design, Detail Engineering, procurement, as-built documentation	1999	KiZPS "Siarkopol"-Tarnobrzeg	Poland
Study for sulphur insoluble in CS <sub>2</sub> production boost	Parameters selection through computer simulation of chemical processes Basic Design, other engineering services	1999	KiZChS "Siarkopol" Grzybów	Poland
Production unit of sulphur insoluble in carbon disulfide	Economic-financial analysis, other engineering services	2000	KiZChS "Siarkopol" Grzybów	Poland
Sulphonation Plant	Capacity- 30 000 mtpy Civil Engineering Design, Detail Engineering, supervision, as-built documentation	2006	PCC Rokita SA Brzeg Dolny	Poland
Engineering documentation of sulphuric acid production line for ZAO POLJUS	Basic Design and Detail Engineering for the Unit on the basis of process design basis supplied by Process Provider.Civil design basis for the Russian Partner.	2008	Biprokwas Kraków Sp. z o.o.	Russia
Flue-gas desulphurisation unit	General Design and Engineering Company, obtaining the required permits, supervision over execution of contracts with equipment vendors General Concept, spatial layout, Civil Engineering Design, Detail Engineering in all disciplines and asbuilt documentation.	2013	Grupa Azoty Zakłady Azotowe "Puławy" S.A.	Poland



# PLANTS: Units based on oil processing and others

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Detail Engineering for semi-finished organic synthesis products complex extension to 60 000 mtpy	Function of general designer. General concept and spatial layout, Civil Engineering Design, Detail Engineering, Procurement, Supervision, AS-Built Documentation.	2002	Zakłady Chemiczne ZACHEM S.A. Bydgoszcz	Poland
Bentonite and bleachine earth processing unit expansion	Revamping of concentration, evaporation and drying systems. Civil Engineering Design, Detail Engineering	2003	KiZPS "Siarkopol" Tarnobrzeg	Poland
Polyol production capacity boost by 30 000 mtpy	New 30 000 mtpy plant connected to the existing plant. Complete documentation. Function of general designer. General concept and spatial layout, Civil Engineering Design, Detail Engineering, start-up, supervision.	2005	PCC Rokita SA Brzeg Dolny	Poland
Revamping of industrial carbon black plant	Post-reaction gas transport system, Basic Design, Civil Engineering Design, Detail Engineering	2005	Carbon Black Poland Degussa (now Evonik Carbon Black)	Poland
Polyols production capacity boost by 30 000 mtpy	Detail Engineering and supervision documentation for vessels. Detail Engineering with a building permit.	2006	PCC Rokita SA Brzeg Dolny	Poland
130,000 mtpy Methanol Plant with application of existing equipment (covering Crude Methanol Plant and methanol Distillation Unit)	Detail Engineering in all disciplines, cooperation with Basic Design Provider (from Ukraine), HAZOP study, acting as General Designer, author's supervision, participation in start-up and approval.	2006	ACHEMA Jonava	Lithuania
Biodiesel plant	Detail Engineering, Civil Engineering Design with a building permit, railway system development project	2007	Wroclawia-BIO Wroclaw	Poland
Water emulsion stabiliser unit	General concept, Basic Design, Civil Engineering Design, Detail Engineering	2007	ANWIL SA Wloclawek	Poland
Selection and setting of an Na <sub>2</sub> CO <sub>3</sub> silo	Basic Design, Civil Engineering Design, Detail Engineering	2008	Inowroclawskie Zakłady Chemiczne Soda Mątwy SA	Poland
Extension of TDI Complex to 75,000 mtpy	Production capacity in production units: CO, phosgene, TDA and TDI. Basic Design, Civil Engineering Design, Detail Engineering	2009	ZACHEM S.A. Bydgoszcz	Poland
Polyols Pilot Plant	Process Design	2010	Undisclosed	
Pilot plant for research on production and forming of catalysts and other ceramic masses	Detail Engineering	2012	Instytut Nawozów Sztucznych, Puławy	Poland
SSBR Plant	Civil Engineering	2014	Synthos Dwory 7 Sp. z o.o. sp. j.	Poland
Resin production plant	General Concept, Civil Design, Detail Engineering, inquiries and proposal analysis	2014	SILEKOL Sp. z o. o.	Poland
Hydrogen Plant - installation of cut-off valves in PSA unit	Inquiries and proposal analysis, Cost Estimates and bill of quantities	2014	PKN ORLEN SA	Poland
InventoX Plant	General Concept, Civil Design	2014	Synthos Dwory 7 Sp. z o.o. sp. j.	Poland
Construction of butadiene tanks with loading / unloading facilities	Budgetary concept Environmental Impact Report Civil Design and obtaining building permit Detail Engineering in all disciplines Procurement Management Author's supervision	under construction	Synthos Dwory Sp. z o.o. Spółka jawna	Poland

# ENVIROMENT PROTECTION:

## NO<sub>x</sub>, SO<sub>2</sub>, NH<sub>3</sub>. Emission abatement, prill tower off-gas dedusting

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Ammonium nitrate prill tower exit air CLEANING UNIT	Capacity - 3 x 1 115 mtpd of granulated product. Basic Design, Detail Engineering	1988	Zakłady Azotowe "Puławy" S.A.	Poland
Ammonium nitrate prill tower exit air CLEANING UNIT	Capacity – 1 200 mtpd of granulated product Basic Design, Detail Engineering	1992	Zakłady Azotowe "Włocławek"	Poland
Sulphuric acid plant flue gas CLEANING UNIT	Capacity – 34 000 Nm <sup>3</sup> /h Detail Engineering	1992	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Capacity – 2 000 mtpd of granulated product Basic Design, Detail Engineering	1993	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Capacity – 1 400 mtpd of granulated product Cooperation with BECO (USA) Detail Engineering, procurement	1993	CHEMIE LINZ	Austria
Urea prill tower exit air CLEANING UNIT	Capacity - 500 mtpd of granulated product Basic Design, Detail Engineering	1995	Zakłady Azotowe "Puławy" S.A.	Poland
Unit for NO <sub>x</sub> abatement from three production lines	Cooperation with Rhodia – Chimie (formerly known as Rhône-Poulenc Chimie), (France). Detail Engineering	1998	Zakłady Azotowe "Puławy" S.A.	Poland
Sulphuric acid plant flue gas CLEANING UNIT	Capacity – 32 000 Nm <sup>3</sup> /h Basic Design, Detail Engineering	1998	Gdańskie Zakłady Nawozów Fosforowych S.A.	Poland
Hydroxylamine Plant off-gases utilisation	Thermal utilization General concept and spatial layout, Detail Engineering	2000	Zakłady Azotowe "Puławy" S.A.	Poland
Urea Plant NH <sub>3</sub> emission reduction through absorption acid	Basic Design, Detail Engineering, other engineering services	2001	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Feasibility Study	2003	Undisclosed	
Flue gas desulphurisation Unit in Rybnik, Poland	Detail engineering and as-built Documentation for wet flue gas desulphurisation unit in Rybnik Power Plant (Poland), author's supervision	2007	Energoprojekt Gliwice S.A.	Poland
NO <sub>x</sub> reduction plants for four nitric acid production lines	Cooperation - BASF Detail Engineering	2009	Zakłady Azotowe "Puławy" S.A.	Poland
Urea prill tower exit air CLEANING UNIT	Civil Engineering Design, Detail Engineering, procurement, start-up, supervision, other engineering services	2009	Undisclosed	
Catalytic NO <sub>x</sub> reduction plant	General concept, procurement	2010	Zakłady Azotowe "Puławy" S.A.	Poland
Catalytic NO <sub>x</sub> reduction plant	Civil Engineering Design, Detail Engineering, procurement	2010	Zakłady Azotowe "Puławy" S.A.	Poland
Flue-gas desulphurisation unit	General Design and Engineering Company, obtaining the required permits, supervision over execution of contracts with equipment vendors General Concept, spatial layout, Civil Engineering Design, Detail Engineering in all disciplines and as-built documentation.	2013	Zakłady Azotowe "Puławy" S.A.	Poland
Flue-gas Desulphurization Plant	Basic Design, Civil Design	2014	Grupa Azoty Zakłady Chemiczne "Police" S.A.	Poland
Sludge dewatering plant in Biological Sewage Treatment Plant	Project Information Card, Cost Estimate, Civil Design, Procurement, Detail Engineering, Supervision	2014	Grupa Azoty Zakłady Azotowe "Puławy" S.A.	Poland
NO <sub>x</sub> capacity increase	General Concept, Cost Estimate	2015	Grupa Azoty Zakłady Azotowe "Puławy" S.A.	Poland
Environment Impact Report	Environment Impact Report	2015	EkoEuropa Energy Sp. z o.o.	Poland
Application for Integrated Permit	Application for Integrated Permit	2015	EkoEuropa Energy Sp. z o.o.	Poland

## AUXILIARY UNITS, COMMON FOR MOST INDUSTRIES: Acids

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Nitric Acid Unit	Cooperation with Rhodia – Chimie (formerly known as Rhône-Poulenc Chimie), (France) Detail Engineering, procurement	1998	Zakłady Azotowe “Puławy” S.A.	Poland
Ammonia/phosphoric acid storage /dosing unit Application	Phosphorous fertilizers granulation. Civil Engineering Design, Detail Engineering, procurement	1999	KiZPS “Siarkopol” Tarnobrzeg	Poland
Procurement and instalation of nitric acid circulation pumps	Inquiry, technical attachments to Contract, detail engineering documentation	2005	Zakłady Azotowe “Puławy” S.A.	Poland
Process design for TKV Nitric Acid Unit	Process design for HNO <sub>3</sub> - Capacity 900 mtpd based on process by INS Puławy, Poland	2006	Zakłady Azotowe Kędzierzyn S.A.	Poland
Engineering documentation for Sulphuric Acid Production Unit for ZAO POLJUS	Basic Design and Detail Engineering for the Unit based on the process data from Process Provider. Civil design basis for the Russian partner.	2008	Biprokwas Kraków Sp. z o.o.	Russia
Hydrochloric acid plant capacity increase by 20 000 mtpy	Civil Engineering Design, Detail Engineering, registration file	2010	Undisclosed	

## AUXILIARY UNITS, COMMON FOR MOST INDUSTRIES: Industrial Gases

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Oxygen Plant	General concept and spatial layout, feasibility study	2001	Zakłady Azotowe “Puławy” S.A.	Poland
Purification of carbon dioxide from Benfield Unit	Detail Engineering, engineering documentation, supervision, as-built documentation	2003	ANWIL SA Włocławek	Poland
Gaseous chlorine piping	Steel pipeline with valving/fittings. Detail engineering documentation and Registration File. Settlements with UDT.	2004	APAKOR-ROKITA Brzeg Dolny	Poland
Air separation unit. Two trains of overall capacity 1700 mtpd	Process by Air Liquide. Concept, Civil Engineering Design, Detail Engineering, procurement, operating manual	2010	Zakłady Azotowe “Puławy” S.A.	Poland

## AUXILIARY UNITS, COMMON FOR MOST INDUSTRIES: Waste & Water treatment

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Revamping of water treatment plant (and some water supply system parts)	Capacity – 70 m <sup>3</sup> /h Civil Engineering Design, Detail Engineering Cooperation – Bartosz sp. j. Białystok	2001	Housing Cooperative Końskowola	Poland
Water Treatment Station.	Capacity – 70 m <sup>3</sup> /h Civil Engineering Design, Detail Engineering Cooperation – Bartosz sp. j. Białystok	2001	Commune Magnuszew	Poland

## AUXILIARY UNITS, COMMON FOR MOST INDUSTRIES: Bulk materials

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Bulk Fertilizer Storage and UAN Terminal	UAN Storage capacity – 27 000 t. Bulk Fertilizer storage capacity – 140 000 m <sup>3</sup> Loading/Unloading capacity – 2000 m <sup>3</sup> /hr Civil Engineering Design, Detail Engineering	1999	Bałtycka Baza Masowa – Port Gdynia	Poland
Bulk material handling terminal in Malaszewicze	Capacity – 500 m <sup>3</sup> /hr Basic Design, Civil Engineering Design, Detail Engineering	1999	Agrostop – Terespol	Poland
Melamine handling, cooling and storage system	Detail Engineering, procurement, operating manual, supervision, start-up	2000	Zakłady Azotowe “Puławy” S.A.	Poland
Handling terminal	Capacity – 150 000 m <sup>3</sup> /hr Basic Design, Civil Engineering Design, Detail Engineering	2000	Trade Trans, Wólka	Poland
Revamping of ammonium nitrate bagging station.	Civil Engineering Design, Detail Engineering, procurement	2002	Zakłady Azotowe “Puławy” S.A.	Poland
Revamping of heat-free granulation (drying) unit	Erection of sections: NPK fertilizers cooling, drying, absorption. General concept and spatial layout, Civil Engineering Design, Detail Engineering.	2002	Zakłady Chemiczne “LUBON” Sp. z o.o.	Poland
Extension of bentonite/bleaching earth processing unit	Revamping of concentration, evaporation and drying systems. Civil Engineering Design, Detail Engineering	2003	KiZPS “Siarkopol” – Tarnobrzeg	Poland
Revamping of urea bagging station	Capacity – 40 t/hr and bagging line (in B G-BAGs) – 60 t/hr. General concept, Civil Engineering Design, Detail Engineering	2008	Zakłady Azotowe “Puławy” S.A.	Poland
Liquid Fertilizer Tank	General Concept	2009	Undisclosed	
Solid fertilizers production plant with storage and loading facilities	Civil Design and Environmental Impact Report, Detail Engineering in all disciplines for the storage and loading complex	2014	Zakłady Azotowe “Puławy” S.A.	Poland
15 000 t. liquid ammonia storage tank	General Concept, Civil Design, Integrated Permit, Detail Engineering, Supervision	2014	Grupa Azoty Zakłady Azotowe “Puławy” S.A.	Poland
Vacuum distillation of aqueous acidic extract	Civil Engineering Design, Detail Engineering	2014	Grupa Azoty Zakłady Azotowe “Puławy” S.A.	Poland
Adaptation of UAN tanks for 55% nitric acid storage	General Concept, Cost Estimate	2014	Grupa Azoty Zakłady Azotowe “Puławy” S.A.	Poland
FEED Study for New Bagging and Truck Loading Facility	General Concept, Cost Estimate, Technical specification, 3D visualisation	2014	Ruwais Fertilizer Industries (FERTIL), Z.E.A.	Poland
Bulk fertilizer storage	Architectural and Civil design of the building	2014	Grupa Azoty S.A.	Poland
Hydrogen peroxide storage capacity increase	General Concept, Cost Estimate	2015	Grupa Azoty Zakłady Azotowe “Puławy” S.A.	Poland
5 800 t liquid fertilizer handling and storage facilities + grain elevator design	EPC project: General Concept, Civil Design, Procurement, Detail Engineering, As-Built Documentation, Supervision	2015	„AGROCHEM PUŁAWY” Sp. z o.o.	Poland
Modernization of handling system of granulated products including Big Bag loading	General Concept, Cost Estimate, material and financial schedule	2015	Grupa Azoty S.A.	Poland
Dry salt plant capacity increase	Civil Design, Detail Engineering, Procurement Management	2015	CIECH Soda Polska S.A.	Poland
Construction of UAN production plant and handling and storage facilities	EPC project: General Concept, Civil Design, Procurement, Detail Engineering, As-Built Documentation, Supervision	2015	Grupa Azoty Zakłady Azotowe Kędzierzyn S.A.	Poland
Chemicals distribution station	Civil Design, Detail Engineering, Process Instruction Manual, Supervision	In progress	PKN ORLEN SA Remzap Sp. z o.o..	Poland
Bulk fertilizer storage	Inquiries and proposal analysis, Foundations design, Detail Engineering, Cost estimate and bill of quantities, Technical specification, Supervision	In progress	Grupa Azoty S.A.	Poland
Butadiene tanks	Project Information Card, General Concept, inquiries and proposal analysis, Civil Design, Detail Engineering, Cost Estimate, Supervision, As-Built documentation, registration files	In progress	Synthos Dwory 7 Sp. z o.o. sp. j.	Poland

## AUXILIARY UNITS, COMMON FOR MOST INDUSTRIES: Remaining industries objects and units/ installations

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Closing of Cooling Water Circulation	Capacity – 1 000 m <sup>3</sup> /h, Civil Engineering Design, Detail Engineering, start-up	1998	Z.Ch. "Organika – Sarzyna" S.A.	Poland
Compressor control system revamping	Modification of Control system from pneumatic to electric. Detail Engineering, procurement, supervision, operating manual	2000	ZACHEM S.A. Bydgoszcz	Poland
Submittance of petrol stations liquid fuel tanks under UDT supervision	Project covered elaboration of simplified documentation for approx. 500 tanks in the Lublin region	2002	PKN ORLEN, Rejon Lublin	Poland
Rvamping of a process unit for the instrument air dehydration	Civil Engineering Design, Detail Engineering	2010	Zakłady Azotowe "Puławy" S.A.	Poland
Sludge dewatering unit for a Biological Sewage Treatment Plant	Civil Design, Detail Engineering, Procurement, Supervision	2014	Zakłady Azotowe "Puławy" S.A.	Poland
Resins production plant	Environmental Report, Concept, Civil Design, Detail Engineering	2015	SILEKOL Sp. z o.o. Kędzierzyn Koźle	Poland
Dry salt plant capacity increase	Civil Design, Detail Engineering, Procurement Management	in progress	Soda Polska CIECH, Janikowo	Poland

## BUILDING AND SANITARY SYSTEMS: Civil engineering structures & systems

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Trade Centre	Floor space – 4.200 m <sup>2</sup> , Cubic capacity– 18.350 m <sup>3</sup> Cooperation - PBP "Puławy" S.A. Detail Engineering	1997	"Commercial Center Taganka" Ltd., Moscow	Russia
Water tower revamping	Height – 21m, volume - 50m <sup>3</sup> Reinforced concrete structure Civil Engineering Design, Detail Engineering	2000	Jednostka Wojskowa w Stawach Ryki	Poland
Reconstruction & development of ball room in historical building - the Czartoryski family Palace	Required work scope agreed and accepted by the Lublin region heritage conservator A room for approx. 200 seats. PROZAP – General Contractor Cooperation - KPRB "Puławy" S.A	2001	IUNG Puławy	Poland
Technical documentation for sites and services/utilities for a housing estate	Civil Engineering Design, Detail Engineering	2001	Housing estate "Przyborowie" in Janów Lubelski	Poland
Plant laboratory at PKP Linia Hutnicza Szerokotorowa Zamość (Steel mill wide railway track line-Zamość)	Analytical lab for assaying oils and boiler water (with rest and refreshment facilities). Civil Engineering Design	2003	PKP Linia Hutnicza Szerokotorowa Zamość	Poland
Production building development	Civil Engineering Design, Detail Engineering	2004	POLFA-LUBLIN S.A.	Poland
Fertilizer Research Center	Civil Design, Cost Estimates, Detail Engineering	2014	INS Puławy	Poland
Electrical building in Stalowa Wola Power Plant	Civil Desing, Detail Engineering, As-Built Documentation, Supervision	in progress	Energoprojekt Gliwice S.A.	Poland

## BUILDING AND SANITARY SYSTEMS: Steel structures and pipelines

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Workshop documentation of ventilation duct	Heat/power plant furnace off-gas ducts	2002	MOSTOSTAL Puławy S.A.	Poland
Piping and ventilation ducts	Detail Engineering documentation	2003	INSTAL-LUBLIN S.A. – Glassworks THOMSON MULTIMEDIA	Poland
Boiler steel structure for Lozanna, Switzerland	Detail Engineering documentation	2004	MOSTOSTAL Puławy S.A.	Poland
Titanium piping replacement for teflon-coated steel piping (for heat recovery unit from saponifier)	Detail Engineering	2005	PCC Rokita SA Brzeg Dolny	Poland

## HEAT/POWER PLANTS, PHARMACY & FOOD INDUSTRY: Heat/power plants

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Liquid Fertilizers Terminal Oil-based boiler house	Capacity – 1 100 kW Medium – water 80°C Civil Engineering Design, Detail Engineering	1998	Bałtycka Baza Masowa – Port Gdynia	Poland
Oil-based Boiler House - Revamping	Capacity – 8 MW Medium – steam 20 mtpH 1,2 MPa Detail Engineering	1999	Zakłady Farmaceutyczne ICN Polfa Rzeszów	Poland
Process condensate degassing	Capacity – 29 mtpH of condensate Detail Engineering	2000	ANWIL SA Włocławek	Poland
Demineralized water unit for heat/power plant	Capacity – 600 mtpd Technical/economical analysis	2000	Zakłady Azotowe "Puławy" S.A.	Poland
Boiler supporting steel structure for Lozanna, Switzerland	Detail Engineering	2004	MOSTOSTAL S.A. Puławy	Poland
Flue-gas desulphurisation unit in Rybnik, Poland	Detail Engineering and As-built documentation for Flue gas wet desulphurisation unit at the Rybnik Power Plant, supervision	2007	Energoprojekt Gliwice S.A.	Poland
Flue-gas sulphurisation Plant	General Design and Engineering Company, obtaining the required permits, supervision over execution of contracts with equipment vendors, General Concept, spatial layout, Civil Engineering Design, Detail Engineering in all disciplines and as-built documentation	2013	Zakłady Azotowe "Puławy" S.A.	Poland
Wet Flue Gas Desulphurisation Plant for cogeneration plant EC2	Basic Design, Civil Design	2014	Grupa Azoty Zakłady Chemiczne "Police" S.A.	Poland
Construction of combined cycle (gas-steam) 400 MWe power plant	EPCM Contract: Tenders for Technical Consultant, EPC Contractor, Gas and Power connection contractor, etc. Supervision over preparation of design and engineering to obtain Building Permit and execution of the project, Supervision – with aid of the Technical Consultant – over the execution of the project.	in progress	Elektrownia Puławy Sp. z o.o.	Poland

# HEAT/POWER PLANTS, PHARMACY & FOOD INDUSTRY:

## Pharmacy & food industry

TASK TITLE	JOB DESCRIPTION	YEAR	CLIENT	LOCATION
Supercritical extraction of hops with liquid CO <sub>2</sub>	Cooperation with INS, Pulawy, Poland. Civil Engineering Design, Detail Engineering, supervision, start-up.	2000	INS Pulawy	Poland
Aqueous solutions unit revamping	Civil Engineering Design with a building permit	2004	POLFA-LUBLIN S.A.	Poland
Enzymes Plant Revamping	Revamping unit capacity boost Instrumentation. Civil Engineering Design, Detail Engineering	2005	POLFA Tarchomin	Poland
Supercritical extraction of vegetable with liquid CO <sub>2</sub>	Civil Engineering Design	2008	INS Pulawy	Poland
Construction of CO <sub>2</sub> Supercritical Plant Extraction Research Center	Detail Engineering in all disciplines, Cost estimates, Documentation for bidding action, Registration files, Process and operating manuals, As-built documentation, Author's supervision	2010	INS Pulawy	Poland