



The Proper Engineering Firm

#Solve For The Customer – 2026 – Rev4.17

WE PROVIDE

Technology, Development, Engineering and Construction services to the chemicals, pharmaceuticals, food and energy sector



Our Story...

We're a team of experienced engineers from multinationals and engineering firms.

Too often, we saw projects miss the mark—unclear assumptions, bloated structures, delayed results.

We knew it could be better.

We deliver engineering the proper way: structured, efficient, and fit for purpose—especially on existing assets and emerging technologies.

We call this: ***“Proper Engineering”***



PROPER ENGINEERING

Is exactly what you get with us,
no more, no less.

Making clever use of 4 elements
that define us...



OUR COMMITMENT

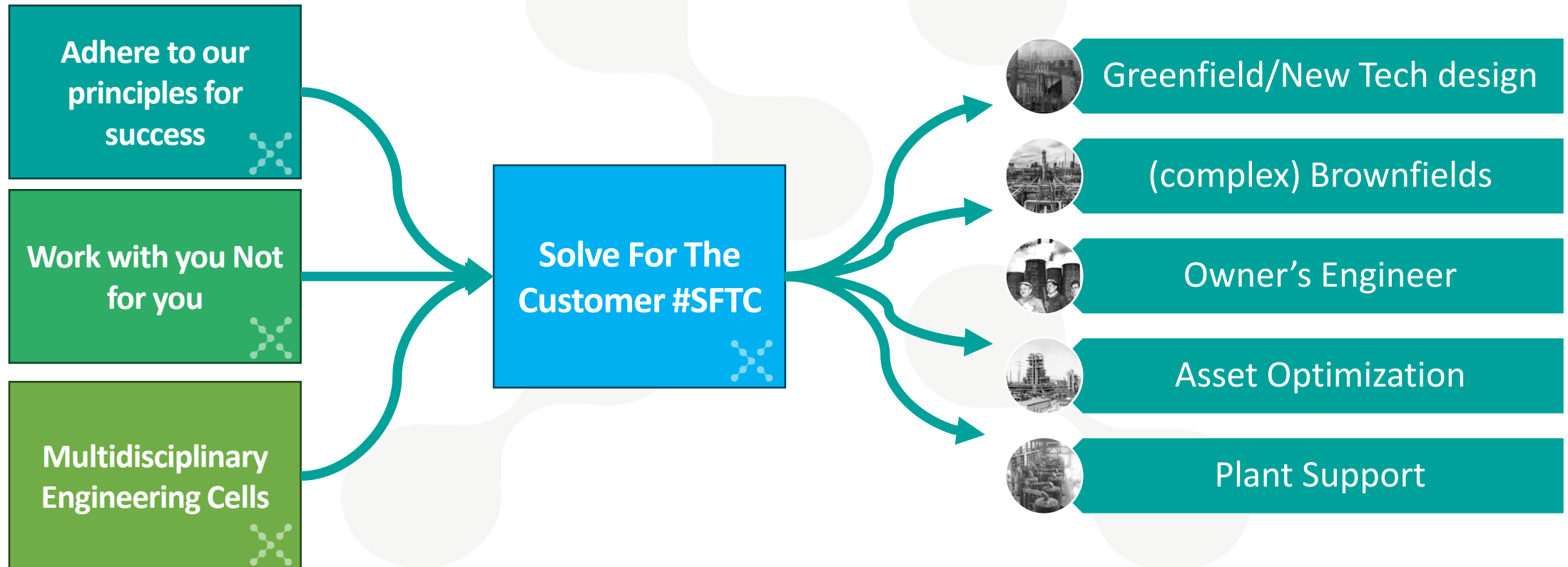
- ✓ To deliver what is agreed upon. Together and fully aligned.
- ✓ On-demand, high quality, on time and within budget.
- ✓ As simple as possible, as complex as necessary



Our Elements that Stand Out

“Like all engineering firms, we strive for the best results and satisfied customers”

But what is special about us is how we:



Core Principles of Success

✕ Integrity

Integrity is at the core of all we do, ensuring trust and honesty in every interaction.

✕ Stewardship

We prioritize safety and drive environmental excellence for the long term.

✕ Realistic

We deal with reality constructively and deliver as promised.



✕ Compliance

We ensure compliance at all levels and all stages of our work.

✕ Human

We are people persons and love to interact with you, especially in the fun(ny) variety.

✕ Aligned

We align with your processes, standards, and procedures to ensure seamless collaboration.



Work with you, not for you

- ✕ Work collaboratively with you on-site.
- ✕ Asking smart questions. Bringing solutions to the table, not leaving you with more questions.
- ✕ We dare to speak out at all levels.
- ✕ Practical plant experience and knowledgeable. Realizing solutions that work for you.



Our Mission: Solve For The Customer

Analyse – we don't assume, we explore

We dig deep to understand your challenge, process, risks and ambitions.
We ask smart questions, gather data, and connect the dots. Fast.

Advice – clear, pragmatic and tailored

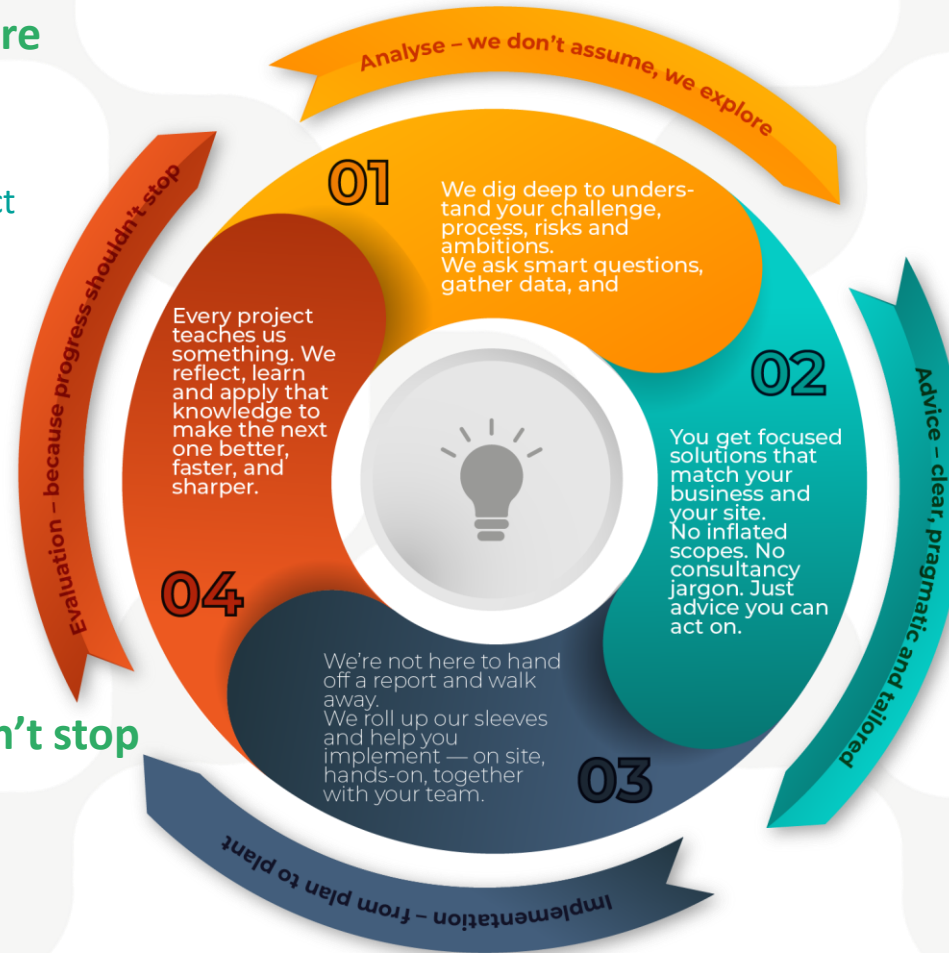
You get focused solutions that match your business and your site.
No inflated scopes. No consultancy jargon. Just advice you can act on.

Evaluation – because progress shouldn't stop

Every project teaches us something. We reflect, learn and apply that knowledge to make the next one better, faster, and sharper.

Implementation – from plan to plant

We're not here to hand off a report and walk away. We roll up our sleeves and help you implement — on site, hands-on, together with your team.

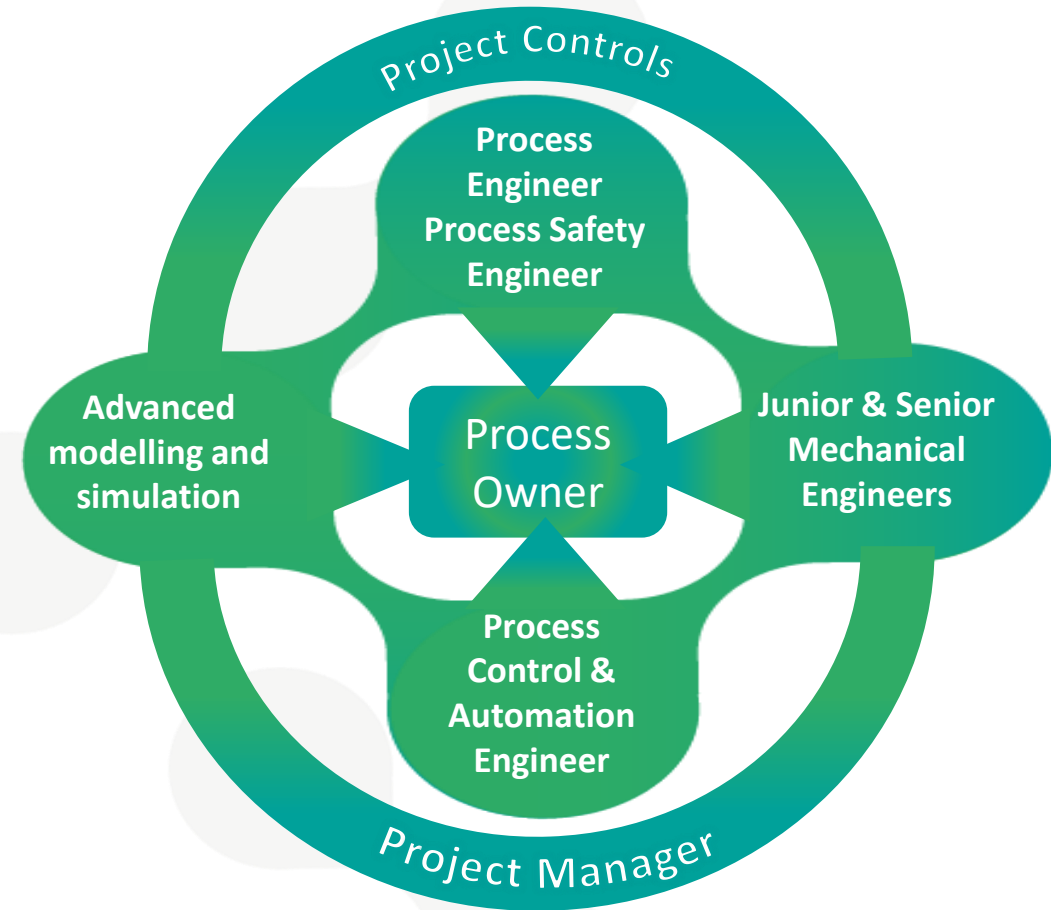


ChemXpro #SFTC vs Traditional Engineering

	Traditional Engineering	#Solve For The Customer ChemXpro
Scoping & definition	via standard questionnaires and checklists	Groundwork, proper investigation & process reviews to get clear understanding resulting in a scope that is as simple as possible, and as complex as necessary
Engineering approach	Siloed engineering, from discipline to discipline Engineering as per client design Suitable for well-defined baselines	Engineering Cell with all relevant disciplines. Scales up and down along the life-cycle of a project Challenges client designs and choices for paramount solutions Suitable for conceptual, basic and high-level baselines
Engineering Packages / deliverables	Standard BEP/DEP's, fixed. Often bloated or incomplete deliverables	Lean BEP/DEP's, tailored to needs and maturity of a project, client's requirements and project-type (e.g. FOAK, new tech, re-built, revamp, permit-application, FID)
Risk mitigation	Addresses known and predictable risks only. Return to previous discipline-silo	Mitigation of unknown unknowns immediately once they appear. Addresses known and predictable risks beforehand
Changed parameters / inputs	Return to previous discipline-silo to rework the change, or assume to resolve in next engineering phase	Engineering structure is prepared to handle changes due to new development insights and progressions along the way
Agility	Rigid, standard	Flexible, agile. Development & engineering in parallel

Organized

- ✕ Engineering Cell Structure, highly aligned loosely coupled
- ✕ Professionals manage themselves and coach others
- ✕ Size and contribution varies according project requirements
- ✕ Requirements scale up and down along the life-cycle of a project



Example Engineering Cell

Why choose ChemXpro?



Process & Technology Development

- ✕ ChemXpro focuses on optimizing product & process designs through screening & selection of the best technologies, and a proper industrial scale-up.



Plant Improvements

- ✕ ChemXpro supports clients with plant-optimizations and debottlenecking strategies, revealing hidden plant potential, improved yields & purities and increased efficiencies.



Effective Engineering Cycles

- ✕ ChemXpro integrates engineering cycles effectively, ensuring that all aspects of the project are handled in a synchronized manner.



Change Management

- ✕ Change management is a vital part of ChemXpro's way of working, ensuring that adaptations are seamless, compliant and efficient.



Flexible Agile Approach

- ✕ The firm employs a flexible and agile methodology, allowing it to adapt to changes and challenges as they manifest. This enables parallel development & engineering effectively.



Simple yet Complex Solutions

- ✕ Delivering solutions that are '*As simple as possible, as complex as necessary*', ensuring clarity while addressing complex challenges.

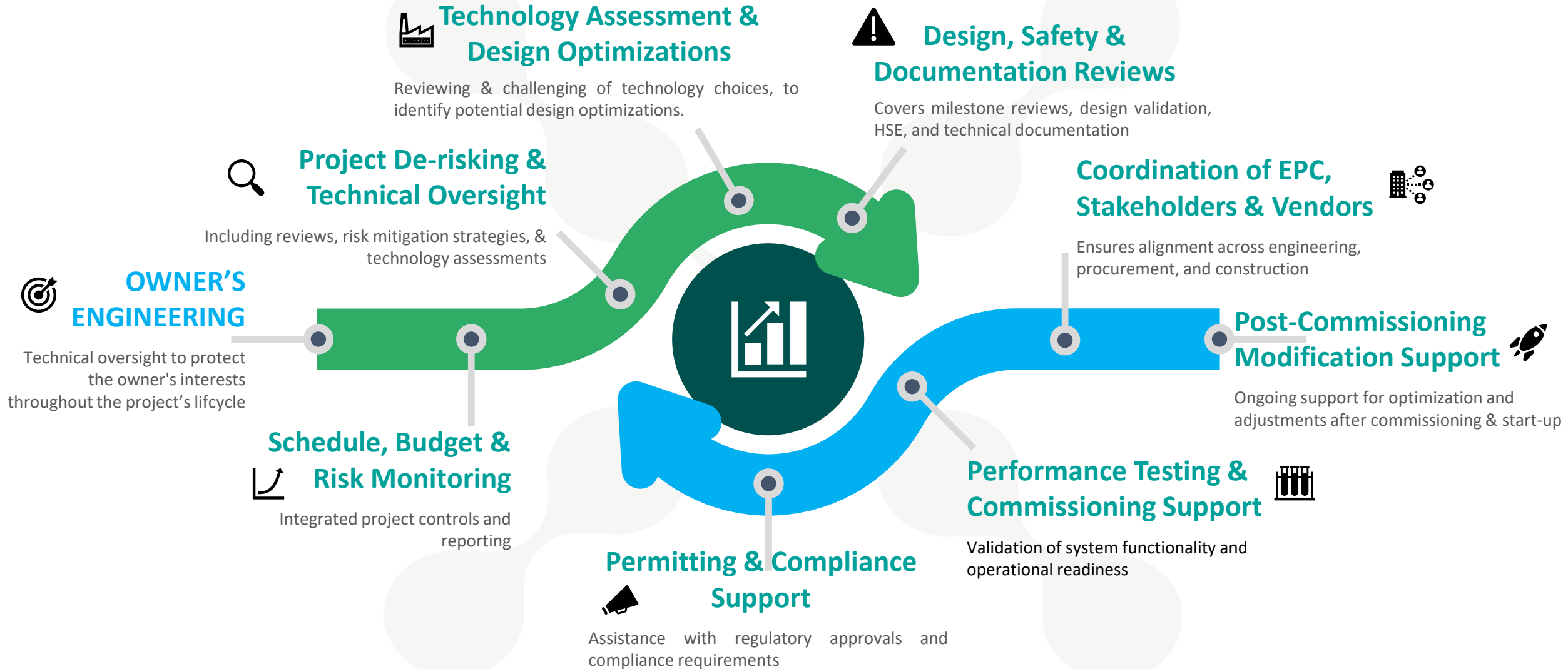
Work Approach

- ✘ Lean, Effective, Modern, Project & Document Management.
- ✘ Project coordination through Planner
 - ✘ Always live schedule, tasks and hour expenditure
 - ✘ Allocation and follow-up of tasks
- ✘ Project and document coordination through SharePoint Exchange
 - ✘ Single source of truth for all data
 - ✘ Less rework. More precision
 - ✘ Less project overhead
 - ✘ Prevents information sharing via e-mail
 - ✘ Proper version control
- ✘ Action and decision register:
 - ✘ Capture all questions, actions, decisions, feedback, information requests between CXP and Client in a shared document.
 - ✘ Keep track of action items, responsible persons and due dates.
- ✘ No Excel sheets with inherent limitations

The image displays four overlapping screenshots of software interfaces used in project management:

- Klynke Time Management:** A timesheet filter interface with fields for Period (01/05/2025 to 06/10/2025), Team (24-010-PS - BOD-BEP), Task Type (All), Billing (All), and Project (All). It includes an 'Export to Excel' button and a list of cases.
- ChemXpro:** A 'Master Document List' interface showing a table with columns for LinkTitle, Doc Code, File Location, Discipline, Engineering Phase, Template, Size of Facility, and Target of Package. It lists documents like 'HVAC Philosophy' and 'Process Control & Safeguarding Narrative'.
- SharePoint Exchange:** A 'Decision List' interface showing a table with columns for ID, Title, Outcome, Discipline, Created, Created By, Approval status, and Approvers.
- Project Task Register:** A detailed task register table with columns for Task Name, Quick look, As..., Start, Finish, Duration, % complete, Priority, and Effort. It lists tasks like 'supplier engagement', 'CEP Package', 'Kick-off', 'Groundwork', 'BOD: Pre-CEP Update', 'General RFQ', 'Preliminary OPEX cost estimation', and 'BOP Concept & Design'.

Owner's Engineering during Detail & EPCM

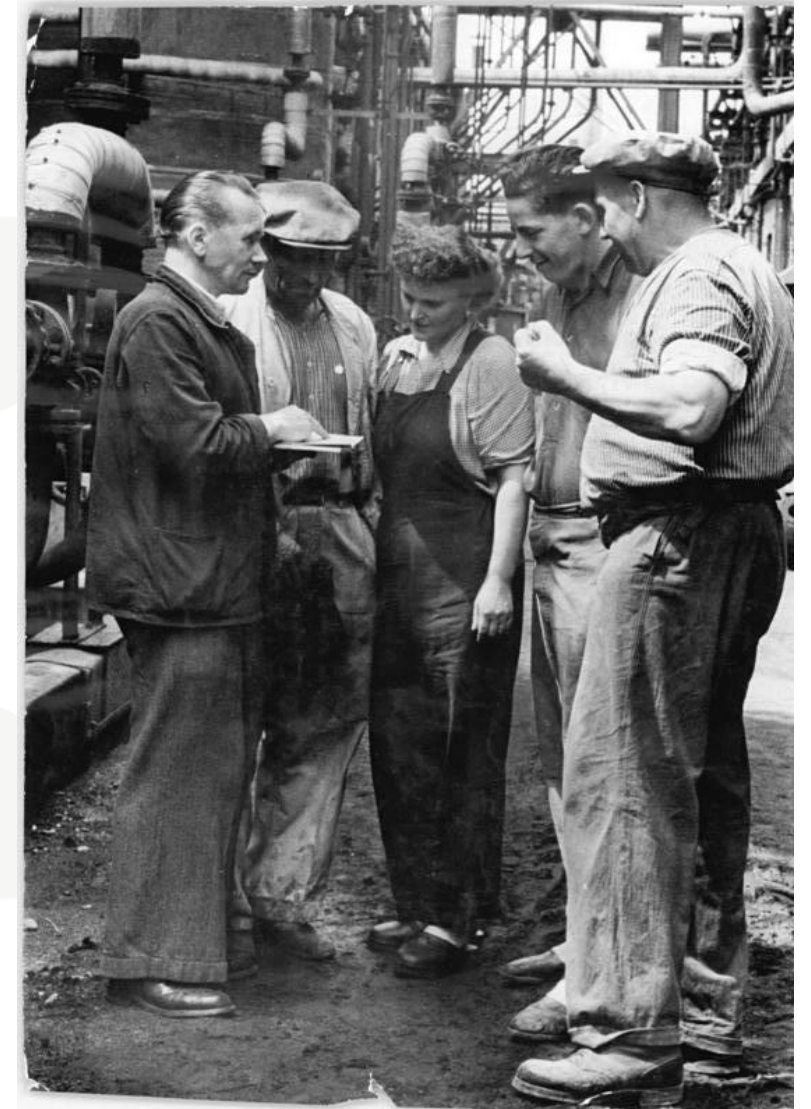


Owner's Engineering Overview

- ✕ **Owner's Engineering** – Provide independent project oversight and support CLIENT throughout the complete project lifecycle; act as the extended engineering advisor on behalf of CLIENT.
- ✕ **Technology Assessment & Design Optimizations** – Review and challenge technology choices; approve contractor designs and procurement activities to ensure compliance with specifications, standards, and contracts.
- ✕ **Coordination of EPC, Stakeholders & Vendors** – Align all parties and facilitate communication between CLIENT, DE/EPC contractors and permitting authorities.
- ✕ **Design, Safety & Documentation Reviews** – Conduct and participate in milestone and design reviews; ensure HSE compliance via audits and corrective measures; review as-built documentation and training materials.
- ✕ **Permitting & Compliance Support** – Support regulatory approvals and ensure compliance with applicable requirements.
- ✕ **Schedule, Budget & Risk Monitoring** – Track project progress, costs, and risks; monitor EPC schedule, identify delays, and recommend mitigations; provide regular progress/deviations reports highlighting key issues and risks.
- ✕ **Project De-risking & Technical Oversight** – Oversee construction through inspections and risk identification; verify quality of materials, equipment, and workmanship via factory and site acceptance tests (FAT/SAT).
- ✕ **Performance Testing & Commissioning Support** – Oversee system testing and commissioning to validate performance and ensure operational readiness.
- ✕ **Post-Commissioning Modification Support** – Provide ongoing support for optimization and adjustments after start-up.

Engineering Services A-Z

- ✕ Proper Engineering
 - ✕ Feasibility & Ideation
 - ✕ Concept Development
 - ✕ Basic Engineering
 - ✕ Detail Engineering
 - ✕ Procurement, construction & assembly
 - ✕ Commissioning & Start-Up (CSU)
- ✕ Owner's Engineering & Client Representation
- ✕ Plant Support, Optimization & Debottlenecking



Engineering Services

- ✕ Optimized CAPEX & OPEX
- ✕ Efficient Scale-Up & Piloting-support
- ✕ Technology, Process & Product Development
- ✕ Automated & controlled processes
- ✕ Making your factory smarter together
- ✕ Clever Modelling & Simulation



Safety & Compliance

- ✕ Process Safety Management
- ✕ Proper methods fit for you
 - ✕ HAZOP – Hazard & Operability Study
 - ✕ LOPA – Layer of Protection Analysis
 - ✕ FMEA – Failure Mode and Effects Analysis
 - ✕ SIL – Safety Integrity Levels
 - ✕ Risk Assessment >> RI&E, Risk Matrix
- ✕ Functional Safety
 - ✕ Safety Instrument Systems (SIS)
- ✕ ATEX & IECEx Compliant

Tag	Description	Rating	Description	VL-001 bottom supply pump A	VL-001 bottom supply pump B
			Tag	PC-001 A	PC-001 B
LSLL-001	VL-001 low-low level	SIL 1		X	X
HS-001	PC-001A remote start/stop	None		X	
HS-002	PC-001B remote start/stop	None			X

Hazard description	Target Event Frequency	Initiating event	Freq. (per yr)	Probability of ignition			People present			Spill containment			Independent Protection Layer			RRF	SIL target
				H&S	ENV	FIN	H&S	ENV	FIN	H&S	ENV	FIN	H&S	ENV	FIN		
Lowlevel in VL-001 results in cavitation and dry-run of supply pumps (PC-001A/B). This can lead to seal damage with a limited release of hydrocarbon close to its flashpoint. Release can cause an initial flash fire with a continued spray fire when an ignition source is found. Initial flash fire can result in a fatality to personnel in close proximity. No significant consequences in terms of environment.	H&S: 1.00E-04	Control loop (LIC-002) fails to respond or forces the outlet valve fully open.	0.1	0.1	1	0.1	0.1	1	1	1	0.1	1	1	1	1	30.0	SIL 1
	ENV: 1.00E-01		0.1	ATEX area with limited exposed heated surfaces.			Limited to production personnel doing routine inspections.			Concrete slab with oily water sewer system.			N/A			0.2	
	FIN: 1.00E-03		0.1													21.0	
		Human error (non routine task < 1/mnth): Pump is started locally in error without sufficient liquid head and left to run dry.	0.01	0.1	1	0.1	1	1	1	1	0.1	1	1	1	1		
			0.01	ATEX area with limited exposed heated surfaces.			Personnel may be in close proximity.			Concrete slab with oily water sewer system.			N/A				
		Process upset: Significant change in feed flow, composition or heat input.	1	0.1	1	0.1	0.1	1	1	1	1	0.1	1	0.1	0.1	0.1	
			1	ATEX area with limited exposed heated surfaces.			Personnel may be in close proximity.			Concrete slab with oily water sewer system.			Control loop (LIC-002) close outlet with pump on min. flow				
			1														

Conceptual Process Design & Modelling

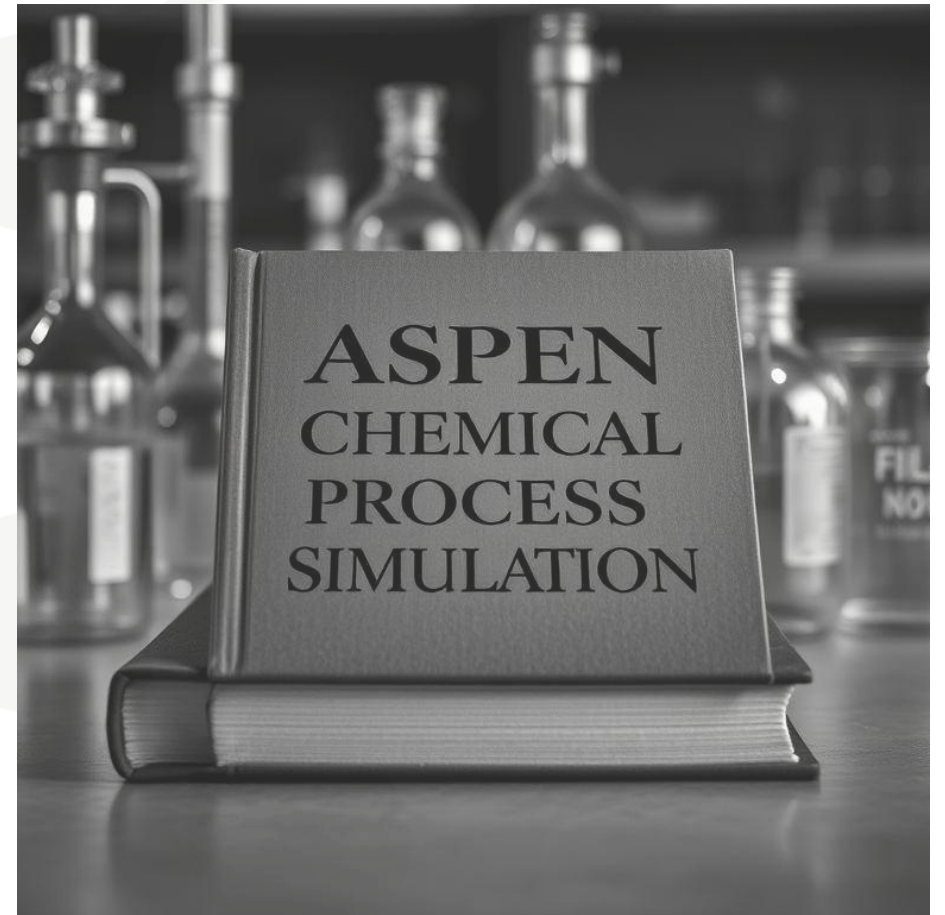
Modeling and Simulation

- ✕ Conceptual process design of brown- and greenfield projects
- ✕ Digital twin of an existing plant or brand-new concept
- ✕ Cost-saving, effective and efficient design development
- ✕ Sensitivity analysis by parametric studies
- ✕ Equipment design, sizing and performance analysis
- ✕ Process optimization
- ✕ Energy optimization
- ✕ Economic evaluation; CAPEX and OPEX calculations

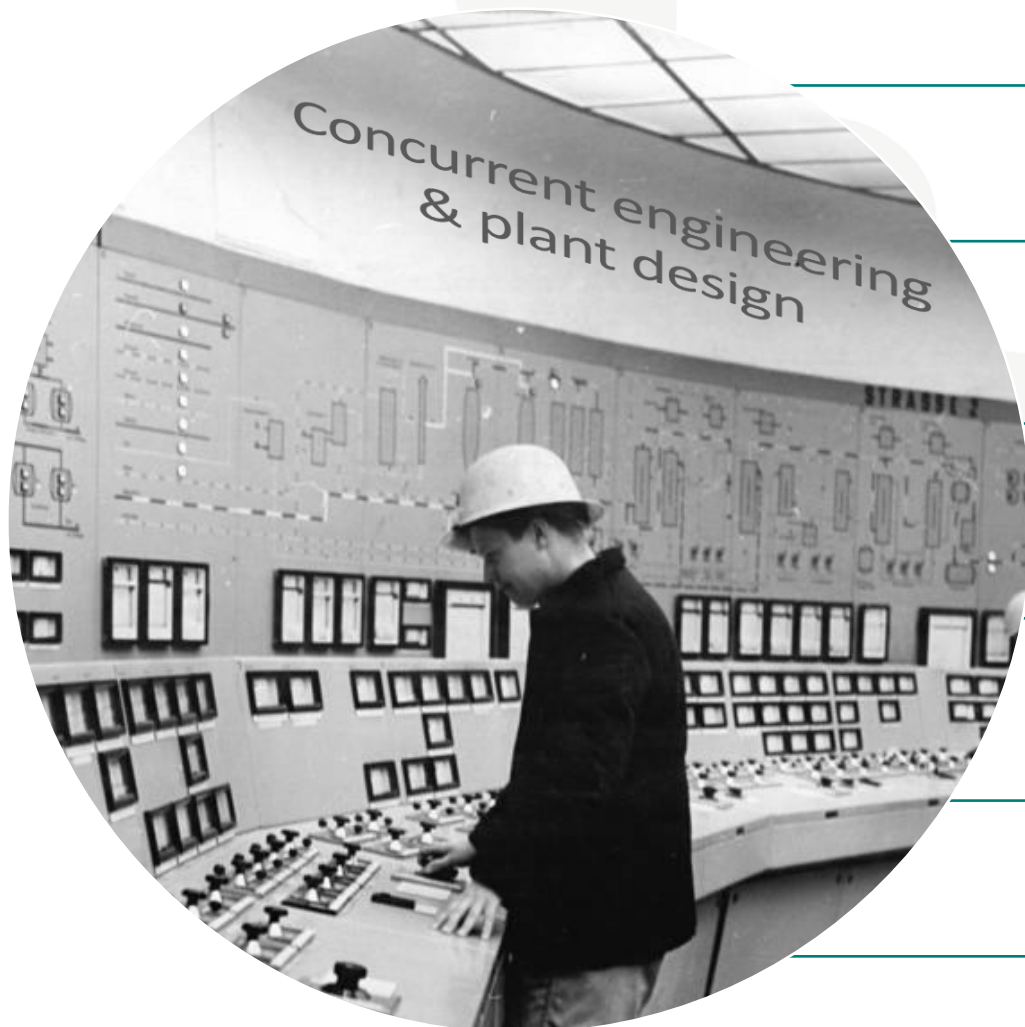
Software Packages We Love to Work with:

- ✕ Aspen® Plus*, Aspen® Hysys*, Python®, ChemCad®, Matlab®

* Aspen® license is directly available to use in-house.



Integrated Process Design & Evaluation



Equipment design,
Sizing and Performance



Cost Estimation
& Saving



Business Case
development



Process, Technology &
Energy Optimization

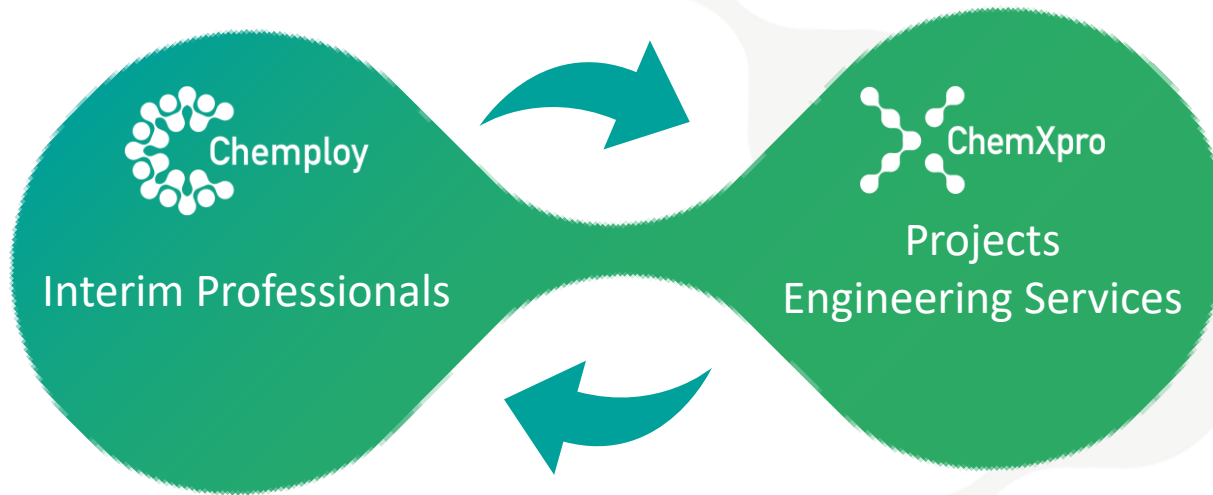


Equilibrium and rate
based modelling



Integrated heat transfer
hydraulics and separation

The relation between Chemploy & ChemXpro



- ❖ Chemploy and ChemXpro work closely together to execute projects efficiently and effectively.
- ❖ Chemploy provides skilled engineers and qualified staff, adds flexibility, knowledge, and skills.
- ❖ Projects executed at ChemXpro, ensuring a seamless integration of resources and expertise.
- ❖ 'Like minded' in their approach, Delivering high-quality solutions at minimal costs.

Interim Services

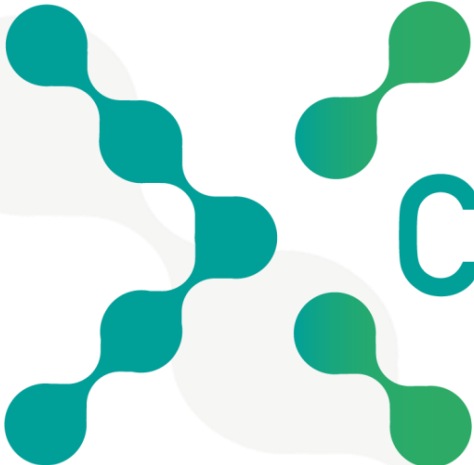
- ✘ Skilled engineers, qualified support staff at your service
- ✘ Adding flexibility, knowledge and skills to your organization
- ✘ Chemploy; dedicated interim professionals



Clients & Markets We Love

 Chemicals
 Food & Feed
 Pharma
 Energy



The logo graphic consists of two stylized molecular chains. The left chain is teal and the right chain is green. They are composed of circles connected by lines, forming a zig-zag pattern. The word "ChemXpro" is written in a teal, sans-serif font to the right of the chains.

ChemXpro

Our Success Stories

Your References

"Confidentiality is integral in how we operate. We never publicly disclose client names or project specifics. This discretion reflects the trust placed in us. However, we are always glad to demonstrate our expertise through relevant, anonymized examples"

Reference Projects - Success Stories

Technology & Process Development

- ✕ Technology Screening, selection & engineering and Techno-economic evaluation of plasticizer extraction
- ✕ Conceptualization, technology selection & Basic Engineering of Polymer-mixture pre-treatment plant for chemical recycling
- ✕ Conceptualization & Basic Engineering of *first of a kind* bio-Polymer Plant
- ✕ Feasibility study for extraction pilot-plant of a nutraceutical with solvent recovery
- ✕ Modelling, design & CAPEX Estimate of a multipurpose duplex-distillation unit
- ✕ Various Technology Reviews / Technical Due Diligences for renewable process concepts, novel process routes, improved separation/purification technologies, patent-review
- ✕ Integration distillation section with 30bar, 27m3 fed-batch hydrogenation-reactor
- ✕ Engineering of automated liq/sol-dosing setup for viscous biobased resin
- ✕ Design, CAPEX est. and techno-economical evaluation of NPK-plant addition to bio-conversion plant

Reference Projects - Success Stories

Plant Support, Optimizations & Debottlenecking:

- ✕ Several HAZOP studies. QRA Studies, ATEX Classifications, Functional Safety SIL/SIF/SIS
- ✕ Debottlenecking & optimization of a multistage distillation setup for IsoPropylAlcohol (IPA) solvent recovery plant
- ✕ Utility & Energy Inventorisation for an integrated milk/dairy processing factory
- ✕ Onsite engineering support during construction, commissioning and operation
- ✕ Capacity revamp & safety upgrade of Fluidized Bed Dryer
- ✕ Project Management, Liaison & Engineering support for new line at chemical recycling plant

Reference Projects - Success Stories

Engineering Packages:

- ✕ Development of CEP, BEP and RFQ packages
- ✕ Basic(+) design of a (plastic) waste to chemicals plant
- ✕ Basic Engineering Package for bio-Polymer Plant
- ✕ Basic Engineering Package for Liquid Organic Hydrogen Carrier (LOHC) Plant
- ✕ Revamping & Upgrading of waste to chemicals plant
- ✕ Design, engineering & process safety/hazard analysis of hydrogen redox battery
- ✕ Concept/Basic/Detailed/Construction package for syngas-cleaning & scrubber package

Reference Projects - Success Story

Technology Upgrade & revamp of Waste to Chemicals Plant:

- ✕ CAPEX: 5MIO
- ✕ Capacity: from 2.5kta to 4kta
- ✕ Ops-mode: from 5day shift to 7 day-shift full continuous ops
- ✕ Complete Engineering (Feasibility, Concept + Basic-plus) / joint engineering with client
- ✕ Various process optimizations & technology improvements in all plant sections
- ✕ Extensive Process Hazard Analysis (o.a. HAZOP)
- ✕ Project Management
- ✕ Liaison between License-owner, SPV, vendors, suppliers, contractors & EPC-partner

Reference Projects - Success Story

Waste to Chemicals Plant:

- ✕ Basic-plus design of a waste to chemicals plant + Owner's Engineer
- ✕ Revamp, expansion & upgrade of existing logistics & storage/tank-park
- ✕ CAPEX: 35MIO
- ✕ Capacity: 20kta
- ✕ Complete Front End Engineering Design Package (Concept + Basic-plus)
- ✕ Various process optimizations & technology improvements / new feedstock section, dosing section, down-stream processing section, off gas treatment/flare, energy integration
- ✕ Extensive Process Hazard Analysis (o.a. HAZOP)
- ✕ Project Management
- ✕ Managing of detail engineering partner/EPC ("Owner's Engineer")
- ✕ Liaison between License-owner, SPV, vendors, suppliers, contractors & EPC-partner

Reference Projects - Succes Story

Advanced Chemical Recycling Plant of Plastic Waste to Chemicals:

- ✕ FEED Package for Plastic-waste to chemicals plant + Owner's Engineering
- ✕ CAPEX: 85MIO
- ✕ Capacity: 24kta
- ✕ Complete Concept & Basic Engineering Package
- ✕ Various process optimizations & technology improvements / Complete Gas Cleaning design meeting permit emissions norms
- ✕ Extensive Process Hazard Analysis (o.a. HAZOP)
- ✕ Project Management
- ✕ Owner's Engineering role ensuring the FEED is properly executed by EPC(m) contractor
- ✕ Liaison between License-owner, SPV, vendors, suppliers, contractors & EPC-partner

Reference Projects - Success Story

Basic Engineering Package + Client's Engineer for thermochemical (gasification) conversion technology

- ✕ Client is a proprietary technology/license provider
- ✕ Joined engineering team with client, ChemXpro provided the engineering team as an extension to the client's engineering team, PM by client
- ✕ Conversion technology licensed and integrated into overarching recycling plant at site of a PET-Chem
- ✕ Overarching project was executed by EPC-partner
- ✕ ChemXpro participated in the complete engineering trajectory, in conjunction with EPC-partner
- ✕ ChemXpro provides engineering support for same client, for other CEP's and BEP's

Reference Projects - Success Story

Concept & Basic Engineering Package + Client's Engineer for FOAK Biopolymer Plant

- ✕ Client has developed a proprietary biopolymer process/technology
- ✕ Joined engineering team with client, ChemXpro provided the engineering team as an extension to the client's engineering team, project management by ChemXpro
- ✕ Process design from batch pilot scale to continuous first of a kind industrial demo plant
- ✕ Technology & vendor Screening, Evaluation & Selection
- ✕ Co-development of research plan for proper engineering & technology selection
- ✕ Conceptual & Basic Engineering of the complete proprietary process
- ✕ Overarching project was executed by EPC-partner, support in EPC selection
- ✕ Engineering Package handover to EPC – Client's Engineering throughout EPC

Reference Projects - Success Story

Engineering & Design of Off-gas Cleaning / Treatment / Scrubber

- ✕ Client is a proprietary technology/license provider
- ✕ ChemXpro developed the client's concept to a feasible design
- ✕ ChemXpro prepared the complete basic-plus engineering package
- ✕ Coordination with mechanical & automation contractor

Reference Projects - Success Story

Debottlenecking of Solvent Recovery Distillation/membrane Plant

- ✕ Client is a manufacturer of specialty ingredients
- ✕ Problem: Azeotropic distillation not operating at name-plate & severe fouling issues
- ✕ ChemXpro executed an in-depth performance analyses
- ✕ Advanced Process Modelling with Aspen®
- ✕ Fault-tree development for root-cause analysis
- ✕ Data analyses, development of debottlenecking strategy
- ✕ Plant revamp, retrofits & Process optimizations
- ✕ Implementation, execution and recommissioning

Reference Projects - Success Story

Technology Assessment & Concept package for Plastic Waste to Chemicals:

- ✕ Concept Package for Plastic-waste to chemicals plant
- ✕ CAPEX: 60MIO
- ✕ Capacity: 20kta
- ✕ Technology Review & Assessment
- ✕ Various process optimizations & technology improvements
- ✕ Technology suppliers and key suppliers
- ✕ Class 4 Cost Estimate

Reference Projects - Success Story

Basic Engineering Package for Dissolution Plant:

- ✕ Basic Engineering Package for Dissolution plant
- ✕ Translation of client's concept package into Basic Design
- ✕ Various process optimizations & technology improvements

Reference Projects - Success Story

Steam network review, optimization and debottlenecking for dairy/milk production plant:

- ✕ Inventory of consumers and steam utility system
- ✕ Process and operability review
- ✕ Integration of smart heating/cooling cycles
- ✕ Plant improvements (proper control valve sizing / steam trap maintenance / elimination of heat losses)
- ✕ Development of energy/steam consumer matrix
- ✕ Review of energy/steam network
- ✕ Development of optimization strategy for energy reduction
- ✕ Integration of new unit operation (pasteurization unit)



Beek Office • Kasteel Genbroekstraat 18 • 6191 KT Beek (Lb) | Zeist Office • Utrechtseweg 82 • 3702 AD Zeist
T +31 (0) 46 206 0008 • info@chemxpro.com • www.chemxpro.com