Brochure

Process safety and environmental management engineering
Are you always confident that your process designs are safe to operate?

Are you sure that all safety and environmental effects of proposed process changes have been considered carefully?

Are your operations fully consistent with your safety case documents?

ABB Consulting provides technical and engineering services to improve performance in the areas of compliance, operations and engineering to customers in the chemical, petrochemical, oil & gas, power and pharmaceuticals industries worldwide.

Process engineering helps to deliver safe, efficient and environmentally sustainable operations. Good process engineers play a vital role in improving operations business performance and managing risk; supporting all parts of the operations lifecycle.

Capabilities
ABB has a very strong team of chemical engineers with a broad range of design and operational experience across all sectors of the oil and gas, chemical and other process industries. This expertise allows ABB to offer practical and pragmatic advice to process operators and to turn recommendations into beneficial solutions.

We can support all phases of operations; new projects and modifications, supporting and improving existing operations and the important areas of improving the safety and environmental performance of operations.

We are familiar with working to specific client protocols for both workflow and technical aspects of a project, as well as industry-wide and international codes and standards.

Communication with our clients is a key aspect of all our services and we strive to understand our client requirements and constraints and to deliver robust and quality solutions on-time and to budget.

We work flexibly with our customers across a broad spectrum of process engineering tasks, either on a client’s site or in our offices. Project scope can vary from small to large projects - for example, validation of the capacity of a single relief stream to closing out all actions from a HAZOP of an oil and gas production platform.

Our proven approach to process safety and environmental engineering involves the following key steps:

- Hazard identification - leading and participating in appropriate studies e.g. HAZOP, process hazard review (PHR), process hazard assessment (PHA), layers of protection analysis (LOPA etc.)
- Risk assessment - often using modelling tools such as DNV’s PHAST software for modelling flammable and toxic emissions to determine the consequences of an event
- Development of practical, cost-effective solutions for risk reduction or mitigation
- Development of a basis of safety - clearly documented for both internal use and communicating with external authorities to provide reassurance that all aspects have been considered
Our experience
Some examples of the services where we have extensive experience across all process sectors include:

Pressure relief
We can carry out pressure relief studies on new or existing plant, or validation of existing relief systems. We run the IChemE approved training course ‘Pressure relief - a proven approach’. We train over 100 delegates a year.

Safety action close-out
We have a robust methodology for responding to actions raised during safety studies such as HAZOP. This includes understanding the real issues, agreeing the approach with the client, gathering the appropriate information and developing a solution that reduces risk to an acceptable limit whilst being cost-effective and practical.

Process safety verification
Our process safety expertise enables us to undertake a thorough review of the process safety aspects of the design of a new or existing asset.

Flare assurance
We have extensive experience in developing, documenting and reviewing flare system models using Aspen Flare System Analyser and using the results to carry out additional system assessments such as acoustic-induced vibration analysis, ice and hydrate formation analysis etc. We are also experienced in blowdown (depressuring) calculations and identification and assessment of scenarios leading to coincident pressure relief and/or blowdown.

VOC abatement and vent collection system safety
We have expertise in VOC abatement including vent collection system design and specification, liaising with equipment suppliers, preparation of PPC applications and improvement programme development and implementation.

Safety case support
We can provide support to any process aspect of the development or revision of your safety case documentation, both onshore and offshore.

Dispersion and radiation assessments
As part of our flare assurance studies, we have carried out both dispersion and radiation calculations for emissions from flares and vent stacks.

Dust explosion protection studies
Our engineers are experienced in evaluation of ignition sources (including electrostatic hazards) through to explosion prevention and protection techniques, consequence modelling and safe vent discharge area calculation. We can also provide auditing and incident investigation services.

Electrostatics hazard protection
We can provide assessment and control of electrostatic ignition hazards and undertake studies for a total plant or specific area to identify hazards, assess risk and develop practical and cost-effective solutions.

Gas and vapour explosion protection studies
Our experience includes assessing a wide range of explosion types including BLEVE, vapour cloud, mist, condensed phase and overpressure explosions.

Effluent and water treatment studies
Our understanding of legislative guidance, best available techniques (BAT) assessment and process design and project management capability enables us to carry out effective studies of effluent treatment processes and to develop appropriate improvements to bridge any gaps between current operations and BAT.

Benefits
Working with ABB’s process engineering support brings a range of benefits including:

- Ready access to operationally focused experienced engineers
- Link to specialists in other engineering disciplines
- Pragmatic approach
- Unparalleled experience in safety engineering
- Efficient and effective working supported by leading edge approaches and tools - including ABB’s PEL software for safe and reliable process calculations
Process engineering services:
- Basic engineering studies
- Process operation development and evaluation
- Computational modelling
- Dispersion and radiation modelling
- Front End Engineering Design (FEED and FEEP)
- Hazardous area classification
- Process safety design
- Pressure relief assurance and training
- Process detailed design
- Process plant support
- Flare and blowdown studies

Other ABB capabilities include:
- Inspection
- Integrity management
- Operations improvement
- Process safety
- Project services
- Site and asset regeneration
- Technical engineering
- Technical software
- Technical training and competency

For further information please contact:

**ABB Consulting**
Daresbury Park
Daresbury
Warrington
Cheshire
WA4 4BT
United Kingdom
Phone: +44 (0)1925 741111
Fax: +44 (0)1925 741212
E-Mail: contact@gb.abb.com

www.abb.com/consulting

ABB Consulting provides technical and engineering services to improve performance in the areas of compliance, operations and engineering to customers in the chemical, petrochemical, oil & gas, power, pharmaceuticals, metals and consumer industries worldwide.