Innovative Process Solutions
Evaporation and Crystallization Technology
Innovative Process Solutions
HPD

HPD is the **worldwide leader** in the development of innovative process solutions for evaporation and crystallization applications. HPD has developed a complete range of capabilities to ensure that our clients receive the results that matter.

It is through this complete approach that HPD has grown from a leading edge local designer into a true global expert with over **650 installations in 30 countries**.

HPD’s unmatched expertise is demonstrated at leading industrial facilities throughout the world. The success of these projects is based upon...

**Process Development**
...through evaluation of our clients’ unique processes in our world-class research facility and determination of the criteria that assure **business objectives** and **system performance** are achieved.

**Complete Accountability**
...by assuming **total responsibility** of the project. One focal point for all aspects of project execution from the initial process evaluation to start-up of the installation with process, capital and schedule performance guarantees.

**Turnkey Capabilities**
...utilizing a complete array of engineering and project management disciplines, we are able to design and build the **entire system** from the foundation to the controls.

**Worldwide Execution**
...combining best practices and innovative thinking with unrivaled experience. HPD manages each project to completion with the guaranteed results expected from our **global** customers.

“The ultra-pure quality produced from the HPD salt crystallizer and the reliability of the system provided the efficiency and availability needed for our facility.”

*Wolfgang Mentsches*
Dir., Chlor-Alkali Production (retired)
Bayer Corporation

“...the improvements that the new system has allowed in our recovery process have exceeded our expectations.”

*Maurice L. LaFuze*
Senior Project Engineer
Greif
Innovation in Key Industries
Success Developed from Broad Market Experience

HPD designs efficient and fully-integrated systems for production of premium chemical products, recovery of valuable by-products and wastewater reclamation for a diverse group of customers and industries worldwide.

The expertise gained from research and development with successful implementation in one industry often spurs innovation in others. HPD leverages this experience into cutting-edge process solutions that benefit customers over a wide range of markets.

Chlor-Alkali
- High-purity brine treatment
- Sodium and potassium hydroxide concentration systems
- Sodium chlorate crystallization
- Membrane Cell brine circuit integration

Ethanol/Agri-products/ Biofuels
- Energy-saving Super Concentration Systems
- Evaporator sets for wet and dry milling processes
- Energy reducing process integration
- Whey concentration and drying systems

Fertilizer
- Potash and potassium carbonate crystallization
- Potassium and sodium nitrate crystallization
- Ammonium sulfate crystallization
- Phosphoric acid
- MAP-DAP

Power Generation
- Integrated water and wastewater facilities
- Zero Liquid Discharge (ZLD)
- FGD Blowdown treatment systems
- Radwaste evaporation / crystallization

Primary Metals
- Alumina spent liquor evaporation and oxalate removal systems
- Nickel, lithium, magnesium and zinc salts crystallization
- Vanadium, tungsten, molybdenum and copper crystallized products

Pulp and Paper
- Black liquor evaporation systems
- High Solids Concentrators
- Chloride Removal Process (CRP™)
- Condensate stripping and segregation

Salt
- High-purity sodium chloride crystallization
- Calcium chloride concentration
- Sodium sulfate crystallization
- High-purity brine treatment

Soda Ash
- Pretreatment systems for solution-mined natural ores
- Sodium carbonate and bicarbonate crystallization
- Sodium carbonate purge minimization and alkali recovery

Specialty Chemicals
- Herbicide
- Amino acid
- Synthetic sweeteners
- Ibuprofen
- Bisphenol–A
- Metabisulfite
- Thiocyanate

Oil and Gas
- Steam Assisted Gravity Drainage (SAGD) water recovery processes
- OTSG Blowdown treatment
- WTB Feed water treatment
- Zero Liquid Discharge
Total Project Capabilities
Process Design, Optimizing Performance and Execution

HPD offers a Total-Systems Approach for evaluating the objectives for each unique customer project.

With critical requirements in mind, the subsequent process design and system engineering from HPD fully addresses operational targets, life-cycle economic benefits and availability impact of the recommended solution.

Careful consideration is given to both upstream and downstream operating parameters from our customers. The result is the delivery of innovative process solutions that optimize the performance of overall plant systems while assuring reliable integration with the host facility.

Design and planning are certainly essential elements to any project. HPD places equal value on execution as the key to success.

Effective project management, engineering capabilities and industry experience ensure that each milestone is achieved from justification to commercial start-up.
Research and Development
- World-class, 50,000+ square-foot research facility dedicated to support new process design and technology development
- Complete range of analytical, bench and pilot-scale testing capabilities
- Detailed sample and product analysis
- Extensive cataloging of physical and chemical pilot evaluations and critical design data
- Implementation of proprietary process and mechanical development programs

Process Design and Validation
- Complete on-site evaluations and technology review to evaluate upstream and downstream parameters
- Life-cycle cost evaluation for process optimization
- Critical element analysis for determination of system availability
- Characterization and development of commercial processes based on new, unknown feed stocks to define product specifications
- Bench / pilot-scale demonstration capabilities for validation of complete processes
- Chemical engineering team with decades of experience in new process development

Detailed Engineering
- Complete engineering of process equipment
- In-house expertise for detailed design of critical project disciplines
- Design and engineering to worldwide standards for all industries served
  - Electrical
  - Structural
  - Controls
  - Mechanical
  - Civil
- Bentley® AutoPlant® 3-D design software with walkthrough capability and BOM generation
Project Management
- Turnkey capabilities to execute the entire project from preliminary and detailed engineering to construction and infrastructure installation
- Effective global communication and implementation
- Worldwide network of reputable suppliers and strategic partnerships

Quality Assurance
- ISO 9001:2000 certified in engineering, procurement and project management services
- Project specific quality plans governing all aspects of project execution
- Strict vendor qualification with respect to contractual obligations on a project basis
- Compliance project review by management team

Start-up and Site Training
- Support at commercial start-up and system performance testing
- Critical evaluation and troubleshooting services
- Thorough operator instruction with practical operation and maintenance documentation
- System performance evaluation with emphasis on design feedback

Operating and Maintenance Services
- Site-based “Operate and Maintain” contract services on a worldwide basis
- Service Organization that provides on-site studies for integration of new systems
- Regulatory compliance and reporting
- Established regional structure for operating standards and production support
HPD is a global leader for innovative process solutions utilizing evaporation and crystallization as core technologies. In addition to providing evaporation and crystallization process designs, HPD supplies fully integrated water and wastewater treatment facilities on a design-build basis.

Operating globally, HPD has delivered proven, custom engineered solutions to the Metals & Mining, Chemical Processing, Pulp & Paper, Power Generation, Salt, Fertilizer, Chlor-Alkali, Biofuels, Oil & Gas, Soda Ash, and Chemical Processing industries.

HPD is a subsidiary of Veolia Water Solutions & Technologies (VWS), the global leader in unique water and wastewater solutions worldwide.