



## ***APPLICABLE EXPERIENCE***

### Section 3. Applicable Experience

Inorganic Chemical Processing Experience  
Steel Processing Experience  
Refining/Petrochemical Experience  
Organic Chemical Processing Experience  
Instrumentation & Computerized Control  
Packaging Experience

## **INORGANIC CHEMICAL PROCESSING EXPERIENCE**

Process Plants Corporation (PPC) personnel have a long history of inorganic chemical activity extending over a period of 35 years. This activity developed from a background in both the hydrometallurgical and inorganic processing industries. We have the capability to develop processes, analyze pilot plant data, and upgrade existing designs to establish designs to establish the economic viability of a project.

Our engineering know-how includes plant proven experience in such vital areas of inorganic chemical processing as:

- Grinding
- Crystallization
- Thickening and Clarification
- Filtration and Centrifugation
- Roasting, Drying and Calcining
- Distillation
- Screening
- Classifying
- Leaching and Dissolution
- Evaporation
- Solvent Extraction and Ion Exchange
- Slurry and Solids Material Handling
- Waste Water Treatment
- Discharge Air Treatment
- Process Control

**INORGANIC CHEMICAL PROCESSING EXPERIENCE** (continued)

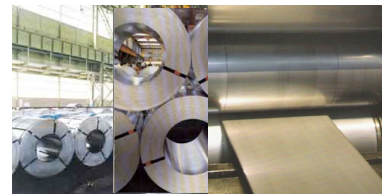
PPC personnel have designed systems using the most difficult reagents including sulfuric, nitric, hydrofluoric and hydrochloric acids, caustic, ammonia, hydrogen sulfide, sulfur dioxide and lime to name some more common ones. These corrosive reagents required special material selections which have included lead, rubber, glass-lining, stainless steel, nickel, titanium and Hastelloy.



*Conceptual, engineering and details, procurement, installation, and maintenance.*

Direct applicable experience for your project has been gained from the following PPC projects:

1. Molycorp Sulfuric Acid Plant
2. ALCOA Low Density Catalyst Spheres Plant
3. LTV Zinc and Nickel Alloy Electroplating Line
4. Double Eagle Electroplating Line



## QUALIFICATION IN STEEL PROCESSING

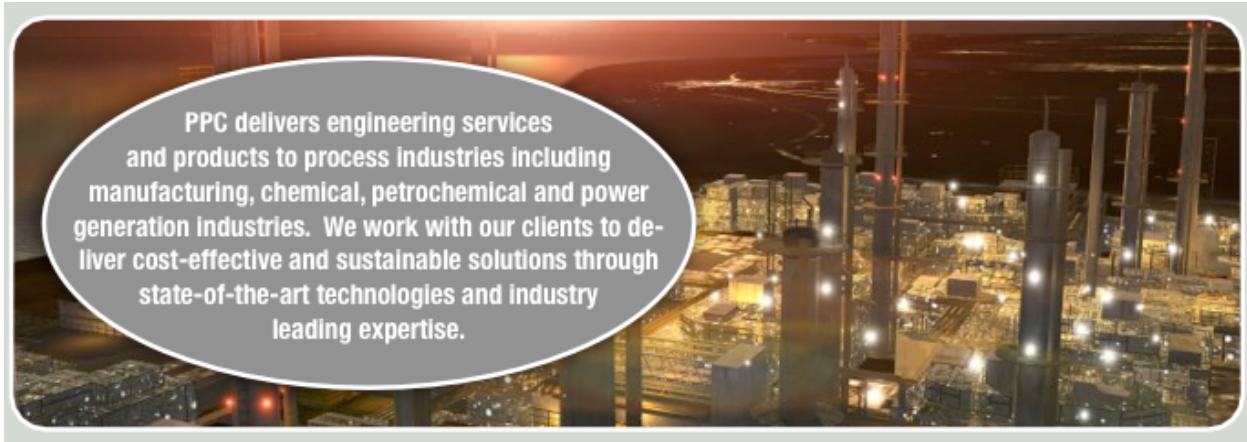
PROCESS PLANTS CORPORATION (PPC) personnel have a long history of steel processing activity extending over a period of 35 years. We have the capability to develop processes, analyze pilot plant data and upgrade existing designs to establish the economic viability of a project.

Although PPC is not large enough to be the lead engineering design company for a grass-roots steel mill, we consider ourselves a cost-effective alternative for many of the key ancillary systems required in such an installation, namely:

- SPECIALTY PIPING
- TRUCK CLEANING STATIONS
- WATER TREATMENT (POTABLE AND PROCESS)
- WASTE WATER TREATMENT
- POWER DISTRIBUTION
- CHEMICAL AND ACID PROCESSING UNITS
- TANK CAR UNLOADING STATIONS
- BARGE LOADING STATIONS
- DRY SOLIDS CONVEYING SYSTEM
- DRY/WET FUME COLLECTION AND SCRUBBING SYSTEMS
- HIGH PRESSURE DESCALING
- HOT STRIP ROLLING
- BILLET CONDITIONING
- COLD ROLLING
- PIPE MILLS
- BOP CONTROLS AND ADDITIVE SYSTEMS
- LMF INSTALLATION AND CONTROL



PPC personnel have designed systems using the most difficult reagents including sulfuric, nitric, hydrofluoric and hydrochloric acids, caustic, ammonia, hydrogen sulfide, sulfur dioxide and lime to name some of the more common ones. These corrosive reagents required special material selections which have included; lead, rubber, glass-lining, stainless steel, nickel, titanium and Hastelloy.



## **REFINING/PETROCHEMICAL EXPERIENCE**

PPC assists chemical, metallurgical and industrial plant owners in solving their operational and environmental problems and in planning and executing their capital projects. We have functional expertise in plant testing and problem evaluation, process planning, preliminary engineering and cost estimating, process licensing and project management. Specific refining and petrochemical process experience follows:

- Operating experience on a MEK/Toluene Lube Oil Solvent Dewaxing Unit for a major refiner.
- Process design studies to modify an existing MEK Dewaxing Unit to primarily deoiling applications for a wax-processing refinery.
- Crude and Vacuum Unit Design.
- Detailed design of Filter House modifications for a wax processing refinery.
- Detailed design for tank farm and other offsites, including new pipe rack and loading rack for a wax refinery.
- Process studies for naphtha splitting to achieve optimum balance between reforming and isomerization for octane, maximum benzene reduction, overall capacity, etc.
- Process design to revamp an existing reformer to operate at low pressure to improve gasoline and hydrogen yield and minimize C1-C4 yield.
- Extensive distillation experience; proficient in the use of HYSIM.

**REFINING/PETROCHEMICAL EXPERIENCE** (continued)

- Process development in propylene polymer gasoline, synthetic lube oils, lube oil viscosity improvers, normal paraffins via urea adduction, alpha olefin dimerization, biphenyl purification, oxo alcohols, alpha olefin sulfonates, BDTA resin hardeners, chlorinated insecticides, natural gas reforming, Fischer-Tropsch synthesis, underground coal gasification and catalytic coal flash hydrolysis.
- Capacity Improvement and Energy Conservation studies for furnaces and distillation equipment.
- Process design for ethane extraction, C3/C4 LPG and natural gasoline production from associated natural gas (expander plant).



*Strong Process Capability*

**Applicable Experience in Hydrocarbon Processing**

Process Plants Corporation is performing major expansion and upgrade projects. Depending on the project, a full complement of engineering disciplines are being used; process, instruments, piping layout, electrical, civil structural, and construction management. After these projects have been engineered, they are competitively bid for material and installation, and then the construction is managed by our field personnel.

***Project List***

- **Maleic Anhydride Area**
- **Polyester Resin Area**
- **Ancillary Systems**

**Project List**

- **Maleic Anhydride Area**

Budget Estimate

MA Proc Compr. Intake

MA Temper H2O

#3 MA Scrub Tower Rupture Disk Access Platform

V-916 Conversion MMA Construction Assistance

MA Weigh Tank Replacement

MA Flaker Floor Repair

MMA Tank Conversion

Heat Exchangers – Dist Col Acid Feed

#3 MA Reactor Butane Feed Analyzers

Still Column Level Indicator

MA Scrubber D-1301 / D-4301 Density Meter

MA Flaker Cooling Water Chiller

MA PC/PLC Control for the MA Area MA Plant Grounding Verification

MA Still Pot Access Platform

MA Plant New Ground System

P & ID Review MA

#3 MA Salt Cooler – QL/QA Inspection

Misc. Engineering for MA Plant

Convert Organic Waste Tank for MMA Service

MA Plant Containment

Tank 920 Conversion and Move for MMA Service

Replace Transformers in MA Area

MA Still Column D-501 Pressure Transmitter



- **Polyester Resin Area**

PR Manifold Vent

PR Waste Storage Area and Roof

PR Reactors / Press Process

PR Ductwork Cleaning

P & ID Review PR

Misc. Engineering for PR Plant

PR Building 3rd Floor Load Investigation

PR Plant Grounding Verification

PLC/DCS Grounding in PR Plant

Pressure Relief Valve Study for PR Plant

2nd Floor of PR Warehouse

480 Feeder for Transformers in PR Building

**• Ancillary Systems**

2EH Piping  
CO/CO2 Analyzer  
Weigh Scale  
Butane Vaporizer LA  
DCPD Storage  
Steam Survey  
Structural Steel (INCI)  
Transformer  
Stenciling  
Office Renovations  
Aqua Waste Tank/Dike  
2EH Punch Lists  
Card Access  
Paint IPA & Silica St – V-909 & V-910  
Styrene Trans Roof  
CAD Assistance  
Paint Utility Boilers  
P & ID Review Estimate  
Water Treat / Floor Repair  
After Coolers E-1201 & E-4301  
Boiler Feed Water Supply to #3 MA  
Steam Drum  
4" Diameter Telephone Conduit  
Conduit Support & Integrity  
Misc. Engineering Services  
P & ID Review Utilities  
Transformer Oil Testing  
Hydrocarbon Detector – Xylene Pump  
Hydrocarbon Detectors – Butane Storage Area  
Glycol Tank Car Loading  
Styrene Tank Car Loading  
Preventive Maint. Program for Duquesne Light Sub.  
Loading Station Return Line to Manifolds  
Thin Tanks Temperature Control  
Pilot Plant Moving  
Reactor Emergency Venting Carbon Filters  
Refiner Still Pot D-501 Level Gage  
Xylene Containment  
Power Use Study – 3500 vs. 2500 hp mtrs at 138kv

Steelwork on IPA and Silica Silos  
Relocating Warehouse Pump  
Complete Revision of Styrene Pumping System  
Add Neutrals to Transformer Substations  
Pull Control Wires – Load Station – Modicom PLC

Modifying Wiring in Lab Building  
Power Study  
Air Cool Condensers in QCL Labs  
Emergency Repair of Butane Area Grounding

We would enjoy meeting with you to present our capabilities in greater detail and assure you of our interest in working with you on future projects.

PPC keeps construction moving by effectively:

- Administering contracts
- Managing costs and schedules
- Maintaining essential communications
- Handling scope additions and deletions
- Tracking progress and
- Conducting quality inspections
- On renovation or expansion projects, PPC plans carefully to minimize disruptions of the ongoing operations.

## **ORGANIC CHEMICAL PROCESSING EXPERIENCE**

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Our engineering know-how includes plant proven experience in such vital areas of organic chemical processing as:

Grinding  
Crystallization  
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Filtration and Centrifugation  
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Distillation  
Screening  
Classifying  
Leaching and Dissolution  
Evaporation  
Solvent Extraction and Ion Exchange  
Slurry and Solids Material Handling  
Waste Water Treatment  
Discharge Air Treatment  
Process Control

Desalting  
Fractionation  
Solvent to lower viscosity  
Crystallizer  
Filters. (Dewaxing, Carbon among two of many)  
Propane deasphalting  
Extraction with propane, to remove asphaltenes and resins, producing two component types, lubricating oil stocks and a bitumen residue.



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## **PROCESS PLANTS CORPORATION** Qualification

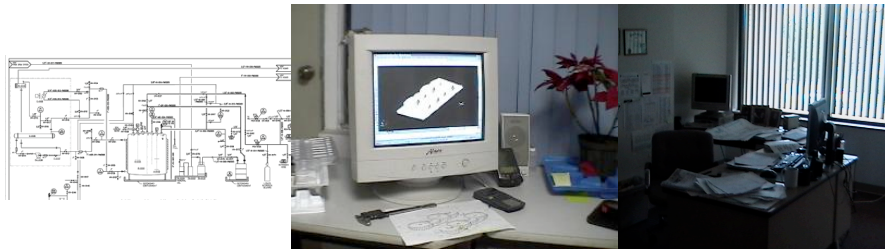
### **INSTRUMENTATION AND COMPUTERIZED PROCESS CONTROL**

PPC considers the Control System as an integral part of the process design. Control system work begins immediately to insure that a controllable process is developed while the Process Engineer is developing overall objectives. This initial effort becomes the foundation for the detailed design and includes all clients' requirements.

PPC does CAD drafted loop diagrams for each control loop that is coordinated with piping and instrument diagrams and electrical physical drawings. Supplemental process descriptions, logic diagrams, or modified logic diagrams are provided to define programming efforts.

Instruments are procured competitively using ISA data sheets for quotations; pre-defined preferred vendors lists are used; these data sheets are kept up-to-date.

Electrical and instrument installation subcontractors are prepared for competitive contractor bidding to install the instrumentation system. When installation is complete, our engineers can assist in the field checkout, operator training and initial start-up.



### **Packaging Experience**

1. Pittsburgh Coke & Chemical Co

Phthalic Anhydride

Product manufacture, molten shipments, product flaking, packaging and shipping.

2. Envirotrol, Inc.

Activated Carbon

Spent carbon reactivation, product packaging in tote bags for shipment.

3. Aristech Chemical Corp.

Maleic anhydride packaging.

## **COMPREHENSIVE PROCESS MANAGEMENT**

Our specialists cover a broad range of maintenance processes and sub-processes, including:

- Routine maintenance work toward avoidance of technical defects and downtime
- Daily service work, cleaning, adjustment, and monitoring of equipment in operation
- Execution of maintenance and repair work
- Special tasks during a general equipment overhaul or for retrofitting and optimization work
- Maintenance management of facilities and equipment involving different manufacturers and technologies.

*PPC focus is on: Plant reliability - Plant availability - Operating costs*



*We would enjoy meeting with you to present our capabilities in greater detail and assure you of our interest in working with you on future projects.*

If you are thinking about expanding or modernizing your existing facility, please consider Process Plants Corporation for assisting you in this task.

## **PROCESS PLANTS CORPORATION**

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**HOW CAN YOU BECOME MORE  
COMPETITIVE IN TODAY'S GLOBAL  
ECONOMY?**