Equipment

REACTORS
(many outfitted with solvent recovery capability)
(1) 6,000 gallon Hastelloy reactor
(1) 6,000 gallon Furan reactor
(7) 2,000 gallon glass-lined reactors
(1) 750 gallon glass-lined reactor
(1) 15,000 gallon SS reactor
(1) 12,000 gallon SS reactor
(3) 6,000 gallon SS reactors
(3) 4,000 gallon SS reactors
(1) 3,000 gallon SS reactor
(8) 2,000 gallon SS reactors
(2) 1,500 gallon SS reactors
(1) 1,350 gallon SS reactor

HYDROGENATION
- 150 psi/full vacuum
- 400° F
- 20 hp agitator featuring 6-blade VWS impeller
- Sparkler pressure leaf filter, 82 ft2

MIX TANKS / CRYSTALLIZERS
(2) 10,000 gallon SS mix tanks
(1) 7,500 gallon SS mix tank
(1) 6,000 gallon SS mix tank
(2) 6,000 gallon SS crystallizers
(2) 5,000 gallon SS mix tanks
(1) 3,500 gallon SS mix tank
(3) 1,500 gallon SS mix tanks

PILOT PLANT
(1) 250 gallon Hastelloy reactor
(1) 100 gallon glass-lined reactor
(1) 33 gallon SS reactor
(1) 10 gallon SS reactor
(1) 3′ diameter pressure/vacuum nutsche filter
(1) 20 ft3 double cone vacuum dryer
(1) 5 ft3 rotary vacuum dryer
(1) 2 ft3 Bolz conical Nauta-type mixer/dryer

DISTILLATION
High temp and high vacuum
batch and continuous
Many of our reactors are outfitted with solvent recovery capability.

5,000-gallon Super Austenitic SS (batch)
- 17 theoretical plates; wire gauze packing
- 36″ diameter column
- 50 psi/full vacuum; 750° F
- Hot oil heated
- Deep vacuum applications (down to 4 torr)

DISTILLATION (continued)

4,000-gallon 316L SS (batch)
- 30 theoretical plates; wire gauze packing
- 36″ diameter column
- 100 psi/full vacuum; 400° F
- Steam heated

2,000-gallon 316L SS (batch)
- 25 theoretical plates
- 24″ diameter column
- 50 psi/full vacuum; 500° F
- Steam or hot oil heated

Continuous 28″ Column
- 14 theoretical plates; structured packing
- 25 psi/full vacuum; 400° F
- Controlled via DeltaV DCS

GRINDING / MILLING / BLENDING EQUIPMENT
(1) 6′x 6′ SS ball mill; heated/cooled
(1) 8′ x 10′ SS ball mill; heated/cooled
(1) ACM air classifying mill
(1) Pin mill
(3) Fitzmill grinders
(2) 250 ft3 SS solids blenders

FILTRATION / DRYING
(4) 7′ diameter SS vacuum Nutsche filters
(1) 5′ diameter SS vacuum Nutsche filter
(1) 48″ SS basket centrifuge filter
(1) 48″ Hastelloy basket centrifuge filter
(6) Sparkler SS pressure leaf filters
(1) 2′x 7′ SS vacuum belt filter
(1) Hastelloy clad 308 ft2 DrM filter
(1) Hastelloy 672 ft2 DrM filter
(1) 2′x 12′ Witte SS fluidized bed dryer
(1) 1′x 6′ Witte SS fluidized bed dryer
(1) 90 ft3 SS double cone vacuum dryer
(3) 140 ft2 SS rotary vacuum dryers
(1) 130 ft2 Luwa SS thin film dryer/evaporator
(1) 43 ft2 Pfaudler SS wiped film dryer/evaporator
(1) 26 ft3 tray dryer

FLAKING
- 2′x 30′ Sandvik SS Belt Flaker
- 48″x 40″ Blaw Knox Flaker
- 24″x 60″ Buflovak Flaker

(with agitator roller or feed pan)

BIO-BASED CHEMICAL SCALE-UP
Batch & continuous conversions of bio-based products to industrial grade chemicals
- Solvent extraction
- Solid-bowl centrifuging
- Continuous liquid decanting
- Continuous solvent recovery
- Conventional filtration/drying
- Flexible plant offers many unit-operations
- DCS Control

ON-SITE BULK STORAGE
40+ bulk tanks, including:
Aniline
Aqueous Ammonia (29%)
Caustic Soda (50%)
Hydrogen
Nitrogen
Sulfuric Acid (93%)
Flammable Solvents