

# CHEMICAL ENGINEERING

## Buyers' Guide Product Classification System

### 1. LIQUID, GAS, AIR HANDLING

#### AIR SEPARATION EQUIPMENT

- 00001 Air separation equipment, cryogenic
- 00002 Air separation equipment, membrane
- 00003 Air separation equipment, pressure swing adsorption
- 02130 Air separation equipment, vacuum swing adsorption

#### COMPRESSORS

- 01967 Compressed-air management systems
- 00004 Compressor lubrication
- 02030 Compressors, centrifugal
- 00005 Compressors, diaphragm
- 00006 Compressors, high pressure
- 00007 Compressors, oil-free
- 00008 Compressors, portable
- 00009 Compressors, reciprocating
- 00010 Compressors, rotary
- 00011 Compressors, rotary liquid ring
- 00012 Compressors, rotary screw
- 00013 Compressors, rotary sliding vane
- 01968 Compressors, single stage, expander driven
- 00014 Compressors, turbodynamic

#### DUCTS & VENTILATION SYSTEMS

- 00015 Dampers
- 00016 Ducts, fiberglass-reinforced plastic
- 02131 Ducts, fire-rated
- 00017 Ducts, flexible
- 00018 Ducts, metallic
- 00019 Ducts, plastic
- 00020 Ducts, rigid
- 02329 Exhaust systems, clean-room
- 00021 Hoods, fume collectors
- 00022 Ventilation systems

#### FANS & BLOWERS

- 00023 Blowers, axial flow
- 00024 Blowers, centrifugal, compressor-type
- 00025 Blowers, centrifugal, fan-type
- 00026 Blowers, positive displacement
- 01865 Blowers, regenerative
- 02517 Blowers, rotary piston
- 02518 Boosters, rotary piston
- 00027 Fans, air cooled
- 00028 Fans, axial
- 02330 Fans, bisected
- 00029 Fans, centrifugal
- 00030 Fans, cooling tower
- 00031 Fans, corrosion resistant
- 00032 Fans, exhaust
- 00033 Fans, exhaust or ventilating, general use
- 01912 Fans, explosion resistant
- 00034 Fans, gasproof
- 00035 Fans, heavy duty
- 00036 Fans, high temperature
- 02031 Fans, other
- 00037 Fans, portable
- 00038 Fans, propeller
- 02331 Fans, vane, axial

#### FLEXIBLE HOSE, METALLIC & NONMETALLIC

- 00039 Hose, air
- 02032 Hose, chemically resistant
- 00040 Hose, electrically heated
- 00041 Hose fittings
- 00042 Hose, high pressure
- 00043 Hose, jacketed
- 00044 Hose, metallic
- 00045 Hose, nonmetallic, fluoroplastic
- 00046 Hose, nonmetallic, neoprene
- 00047 Hose, nonmetallic, PVC
- 02332 Hose, nonmetallic, urethane
- 02033 Hose, sanitary
- 00048 Hose, steam
- 00049 Hose, vacuum
- 00050 Hose, water

#### PIPE FITTINGS & COUPLINGS, METALLIC & NONMETALLIC

- 00061 Bends, pipe
- 00062 Blinds, pipeline
- 00063 Caps, pipe
- 02333 Couplings, dry-disconnect
- 00064 Couplings, flexible
- 00065 Couplings, quick connect
- 00066 Couplings, rigid
- 02514 Couplings, self aligning
- 00067 Elbows, pipe
- 02035 Expansion bellows
- 00068 Expansion joints, flexible
- 00069 Expansion joints, swivel
- 00070 Flanges
- 02211 Flow conditioners
- 00071 Hangers, pipe & tube
- 00072 Jacketing, pipe
- 00073 Joints, swivel
- 00074 Pipe adapters
- 00075 Pipe fittings, belled end
- 00076 Pipe fittings, electrically heated
- 00077 Pipe fittings, emergency repair
- 00078 Pipe fittings, extra length
- 02334 Pipe fittings, graphite
- 00079 Pipe fittings, high pressure
- 00080 Pipe fittings, jacketed
- 00081 Pipe fittings, lined
- 00082 Pipe fittings, metallic
- 00083 Pipe fittings, nonmetallic
- 00084 Pipe fittings, sanitary
- 00085 Pipe strainers
- 00086 Plugs, pipe
- 00087 Sleeves, pipe
- 00088 Snubbers, pressure
- 00089 Surge suppressors
- 00090 Unions, pipe
- 00091 Weldments, pipe

#### PIPE, ALLOY STEEL

- 00051 Pipe, high-alloy steel
- 00052 Pipe, nickel & nickel alloy
- 00053 Pipe, stainless steel
- 02132 Pipe, stainless steel, duplex

#### PIPE, ALUMINUM & ALUMINUM ALLOYS

- 00054 Pipe, aluminum
- 00055 Pipe, aluminum alloy

#### PIPE, CARBON STEEL

- 00056 Pipe, carbon steel, centrifugally cast
- 00057 Pipe, carbon steel, seamless
- 00058 Pipe, carbon steel, welded

#### PIPE, COPPER & COPPER ALLOYS

- 00059 Pipe, copper
  - 00060 Pipe, copper alloy
- #### PIPE, IRON & IRON ALLOYS

- 00092 Pipe, cast iron
- 00093 Pipe, ductile iron
- 00094 Pipe, iron alloys
- 00095 Pipe, wrought iron

#### PIPE, LINED

- 00096 Pipe, cement lined
- 00097 Pipe, ceramic lined
- 00098 Pipe, glass lined
- 00099 Pipe, metal lined
- 00100 Pipe, plastic lined
- 00101 Pipe, rubber lined

#### PIPE, NONMETALLIC

- 00102 Pipe, asbestos-cement
- 00103 Pipe, clay
- 00104 Pipe, concrete
- 00105 Pipe, glass
- 00107 Pipe, graphite
- 00106 Pipe, hard rubber
- 00108 Pipe, porcelain
- 00109 Pipe, rubber
- 00110 Pipe, wood

#### PIPE, OTHER

- 00111 Pipe, ceramic-metal
- 02398 Pipe, clad
- 00112 Pipe, containment
- 00113 Pipe, cryogenic
- 00114 Pipe, custom fabricated
- 00115 Pipe, finned
- 00116 Pipe, flanged
- 00117 Pipe, jacketed
- 00118 Pipe, prefabricated
- 00119 Pipe, pretraced

#### PIPE, OTHER NONFERROUS METALS

- 02532 Bellows, metallic
- 00120 Pipe, sanitary
- 00121 Pipe, lead
- 00122 Pipe, tantalum
- 00123 Pipe, titanium
- 00124 Pipe, zirconium

#### PIPE, PLASTIC

- 00125 Pipe, ABS
- 00126 Pipe, chlorinated polyether
- 00127 Pipe, chlorinated PVC
- 02397 Pipe, ECTCFE
- 00128 Pipe, epoxy-glass
- 01866 Pipe, perfluoroalkoxy (PFA)
- 00129 Pipe, phenolic-glass
- 00130 Pipe, polybutylene
- 00131 Pipe, polyester-glass
- 00132 Pipe, polyethylene
- 00133 Pipe, polyolefin
- 00134 Pipe, polypropylene
- 00136 Pipe, polyvinylidene fluoride
- 00137 Pipe, PTFE
- 00135 Pipe, PVC
- 02034 Pipe, vinyl ester - glass

#### PUMP PARTS & FITTINGS

- 00138 Bushings, pump
- 00139 Casings, pump
- 02214 Couplings, magnetic
- 00140 Jackets, heating, pump
- 00141 Liners, pump
- 00142 Sleeves, pump

#### PUMPS, CENTRIFUGAL

- 00143 Pumps, centrifugal, ANSI
- 00144 Pumps, centrifugal, double suction
- 00145 Pumps, centrifugal, dry running
- 00146 Pumps, centrifugal, inline
- 00147 Pumps, centrifugal, multistage
- 01913 Pumps, centrifugal, process, medium duty
- 00148 Pumps, centrifugal, self-priming
- 00149 Pumps, centrifugal, single stage
- 00150 Pumps, leakproof
- 00151 Pumps, propeller
- 00198 Pumps, screw centrifugal
- 00152 Pumps, turbine
- 00153 Pumps, turbine, regenerative

#### PUMPS, LINED

- 00154 Pumps, ceramic lined
- 00155 Pumps, glass lined
- 00156 Pumps, other lined
- 00157 Pumps, plastic lined
- 00158 Pumps, rubber lined

#### PUMPS, OTHER

- 00159 Pumps, acid, corrosive
- 00160 Pumps, air driven
- 00161 Pumps, axial flow
- 02036 Pumps, battery-powered
- 00210 Pumps, canned motor
- 00162 Pumps, carboy or drum
- 02341 Pumps, channel impeller
- 00163 Pumps, condensate return
- 00164 Pumps, cryogenic
- 02213 Pumps, disc
- 01867 Pumps, dry vacuum
- 02037 Pumps, explosion proof
- 00165 Pumps, flexible impeller
- 01970 Pumps, gas mixing
- 00166 Pumps, hand
- 00167 Pumps, high pressure
- 00168 Pumps, jacketed
- 00169 Pumps, magnetically driven
- 00170 Pumps, mixed flow
- 00171 Pumps, molten metal
- 01868 Pumps, oil free
- 00172 Pumps, open impeller
- 02134 Pumps, other
- 01914 Pumps, peristaltic
- 00173 Pumps, pressure powered
- 00174 Pumps, recessed impeller
- 00175 Pumps, sealless
- 00176 Pumps, sludge
- 00177 Pumps, slurry
- 02342 Pumps, spiral-vane impeller
- 02343 Pumps, torque flow
- 02133 Pumps, transfer
- 00178 Pumps, water

#### PUMPS, PROPORTIONING

- 00179 Pumps, diaphragm (proportioning)

- 00180 Pumps, metering

- 00181 Pumps, plunger

#### PUMPS, RECIPROCATING

- 00182 Pumps, diaphragm (reciprocating)
- 00183 Pumps, piston
- 00184 Pumps, piston-diaphragm
- 00185 Pumps, plunger

## **PUMPS, ROTARY**

00186 Pumps, gear  
00187 Pumps, helical  
00188 Pumps, lobe  
00189 Pumps, progressing cavity  
00190 Pumps, rotary cycloidal  
00191 Pumps, rotary helical gear  
00192 Pumps, rotary herringbone  
00193 Pumps, rotary liquid ring  
00194 Pumps, rotary piston  
00195 Pumps, rotary positive displacement  
00196 Pumps, rotary sliding vane  
00197 Pumps, screw

## **PUMPS, SPECIAL MATERIALS**

00199 Pumps, ceramic  
02212 Pumps, fiberglass-reinforced plastic  
02335 Pumps, graphite  
00200 Pumps, nickel-based alloy  
02336 Pumps, nonmetallic  
00201 Pumps, other special materials  
00202 Pumps, plastic  
00203 Pumps, stainless steel  
00204 Pumps, tantalum  
00205 Pumps, titanium  
00206 Pumps, zirconium

## **PUMPS, VACUUM & EJECTOR**

01969 Aspiration systems  
02493 Pumps, jet, sanitary  
02337 Pumps, vacuum, dry  
02338 Pumps, vacuum, liquid ring  
02339 Pumps, vacuum, once-through-oil  
00207 Pumps, vacuum, other  
02340 Pumps, vacuum, rotary piston  
00208 Steam jet ejectors  
00209 Vacuum pumping systems

## **PUMPS, VERTICAL & DEEP WELL**

02399 Pumps, dewatering, submersible  
00211 Pumps, packless  
00212 Pumps, submersible  
00213 Pumps, sump  
00214 Pumps, vertical centrifugal  
00215 Pumps, vertical inline  
00216 Pumps, vertical turbine

## **SEALS, GASKETS & PACKING MATERIALS**

00217 Gaskets, asbestos  
00218 Gaskets, braided  
00219 Gaskets, cork  
00220 Gaskets, cryogenic  
00221 Gaskets, fluoroplastic  
02400 Gaskets, insulating  
00222 Gaskets, lead  
00223 Gaskets, metallic  
00224 Gaskets, molded  
02215 Gaskets, O-ring  
00225 Gaskets, paper  
00226 Gaskets, plastic  
00227 Gaskets, ring  
00228 Gaskets, rubber  
00229 Gaskets, sheet  
00230 Gaskets, silicone  
00231 Gaskets, spiral wound  
00232 Packings, asbestos  
00233 Packings, braided  
00234 Packings, carbon  
00235 Packings, felt  
00236 Packings, fluoroplastic  
00237 Packings, leather  
02483 Packings, mica  
00238 Packings, molded  
00239 Packings, plastic  
00240 Packings, pump  
00241 Packings, random  
00242 Packings, ring

00243 Packings, rubber  
00244 Packings, shaft  
00245 Packings, sheet  
00246 Packings, silicone  
00247 Packings, structured  
00248 Packings, valve stem  
00249 Seals, balanced pressure  
00250 Seals, bearing  
00251 Seals, bellows  
00252 Seals, diaphragm  
02344 Seals, gas-lubricated  
00253 Seals, magnetic  
00254 Seals, mechanical  
02135 Seals, noncontacting  
02038 Seals, pipe penetration  
00255 Seals, shaft  
00256 Seals, spring  
02039 Seals, triplex  
00257 Seals, vacuum  
00258 Seals, vaportight  
00259 Stuffing boxes

## **STEAM TRAPS**

00260 Steam traps, disc  
00261 Steam traps, float  
00262 Steam traps, float & thermostatic  
00263 Steam traps, impulse  
00264 Steam traps, inverted bucket  
00265 Steam traps, orifice devices  
00266 Steam traps, thermostatic

## **TANKS & OTHER LIQUID STORAGE**

### **VESSELS**

02216 Bulk liquid storage services  
00267 Spheres, high-pressure gas  
00274 Tank cleaning & removal  
00275 Tank closures  
00268 Tank fittings & accessories  
00269 Tanks, air  
00270 Tanks, aluminum  
02522 Tanks, bladder  
00271 Tanks, carbon lined  
00272 Tanks, carbon steel  
00273 Tanks, ceramic-metal  
02519 Tanks, concrete  
01915 Tanks, cryogenic  
00276 Tanks, cryogenic, vacuum jacketed  
00277 Tanks, custom fabricated  
00278 Tanks, dimple jacketed  
01971 Tanks, dome roof  
00279 Tanks, double containment  
00280 Tanks, epoxy-fiberglass  
00281 Tanks, epoxy lined  
02345 Tanks, field-erected  
00282 Tanks, flexible  
00283 Tanks, floating roof  
00284 Tanks, fluoroplastic  
00285 Tanks, galvanized  
00286 Tanks, glass lined  
02137 Tanks, heated  
01972 Tanks, internal floating deck  
00287 Tanks, mixing  
00288 Tanks, nickel or nickel alloys  
02136 Tanks, offshore  
00289 Tanks, other  
02217 Tanks, phenolic-fiberglass  
00290 Tanks, phenolic lined  
00291 Tanks, polyester-fiberglass  
00292 Tanks, polyethylene  
00293 Tanks, polypropylene  
00295 Tanks, pressurized storage  
00294 Tanks, PVC  
02138 Tanks, refrigerated  
00296 Tanks, rubber lined  
00297 Tanks, settling  
00298 Tanks, stainless steel

00299 Tanks, stainless steel, lined  
00300 Tanks, tapered wall  
00301 Tanks, tile  
02040 Tanks, vinyl ester - fiberglass  
00302 Tanks, water  
00303 Tanks, wood

## **TUBING & TUBE FITTINGS, METALLIC & NONMETALLIC**

00304 Coils, tubing  
00305 Tube fittings  
00306 Tube sheets  
00307 Tubing, boiler  
00308 Tubing, condenser  
00309 Tubing, evaporator  
00310 Tubing, ferrous  
00311 Tubing, finned  
00312 Tubing, flexible metal  
00313 Tubing, heat exchanger  
00314 Tubing, high pressure  
00315 Tubing, high temperature  
00316 Tubing, instrument  
00317 Tubing, nonferrous  
00318 Tubing, nonmetallic  
00319 Tubing, perforated  
00320 Tubing, plastic  
00321 Tubing, pneumatic  
00322 Tubing, refractory  
00323 Tubing, rubber  
00324 Tubing, seamless  
02513 Tubing, silicone  
00325 Tubing, vacuum  
00326 Tubing, welded  
00327 U-bends, tube

## **VALVES**

01917 Valve-locking devices  
00364 Valve parts & fittings  
00328 Valves, air  
02041 Valves, airlock flap-gate  
00329 Valves, airlock rotary  
00330 Valves, angle  
02218 Valves, backflow  
00331 Valves, ball  
00332 Valves, bellows sealed  
00333 Valves, butterfly  
00334 Valves, cage  
00335 Valves, ceramic lined  
00336 Valves, check  
00337 Valves, control, electric  
00338 Valves, control, hydraulic  
00339 Valves, control, pneumatic  
00340 Valves, control, regulator  
00341 Valves, control, solenoid  
00342 Valves, cryogenic  
00343 Valves, deluge  
00344 Valves, diaphragm  
02042 Valves, diverter  
00345 Valves, double block & bleed  
02346 Valves, dry-disconnect  
00346 Valves, electrically heated  
00347 Valves, flush-bottom tank  
00348 Valves, gate  
00349 Valves, glass  
00350 Valves, glass lined  
00351 Valves, globe  
02347 Valves, graphite  
00352 Valves, heat actuated, fail safe  
00353 Valves, high pressure  
00354 Valves, high temperature  
00355 Valves, hopper  
02485 Valves, iris  
00356 Valves, jacketed  
02219 Valves, knife-gate  
00357 Valves, line blind  
01916 Valves, metal seated

00358 Valves, mixing  
00359 Valves, motor operated  
00360 Valves, multiport  
00361 Valves, needle  
00362 Valves, nuclear  
02045 Valves, other  
00363 Valves, packless  
02043 Valves, pilot operated  
00365 Valves, pinch  
00366 Valves, plastic  
00367 Valves, plastic lined  
00368 Valves, plug  
00369 Valves, pneumatic  
00370 Valves, pressure reducing  
02044 Valves, proportional  
02220 Valves, pump protection  
00371 Valves, quick closing  
00372 Valves, ram  
02221 Valves, recirculation, automatic  
00373 Valves, relief  
00374 Valves, rubber lined  
00375 Valves, safety  
00376 Valves, sampling  
00377 Valves, slide  
00378 Valves, slurry  
01973 Valves, tank blanketing  
02139 Valves, tank venting  
00379 Valves, titanium  
00380 Valves, vacuum  
00381 Valves, vacuum relief  
01974 Valves, vent, low pressure  
00382 Valves, zirconium

## **2. SOLIDS PROCESSING & HANDLING**

### **BINS & OTHER DRY STORAGE EQUIPMENT**

00383 Bin activators  
02046 Bin inserts  
00384 Bins  
00385 Bins, weighing  
00386 Gates, hopper  
00387 Hoppers  
00388 Hoppers, weighing  
00389 Silos

### **BULK CARRIERS, LOADING & UNLOADING EQUIPMENT**

00390 Dumpers  
02047 Lift tables  
00391 Lift trucks  
01975 Lift trucks, all-terrain  
00392 Lift trucks, explosion proof  
00393 Loaders, car  
00394 Loaders, front end  
01869 Loaders, tank car, with densification  
00395 Loading arms  
02048 Pallet trucks  
01976 Railroad car spotter, indexer, or positioner  
00397 Trucks, specialized in-plant  
00399 Unloaders, barge  
02142 Unloaders, bulk bag  
02049 Unloaders, hopper car  
00398 Unloaders, other  
00400 Unloaders, tank car  
01870 Unloaders, tank car, with densification  
00401 Unloaders, tank truck  
**BULK CHEMICAL CARRIERS**  
00402 Barges  
00403 Railcar units  
00404 Trucks

**COATING, FORMING & AGGLOMERATION EQUIPMENT**

- 00405 Agglomerators
- 00406 Briquetting systems
- 00407 Calenders
- 00408 Coaters & coating machinery
- 00409 Compactors
- 00410 Densifiers
- 00411 Extruders
- 00412 Granulators & granulating mills
- 00413 Pans, revolving coating
- 00414 Pelletizers
- 00415 Prillers

**CONVEYORS & ELEVATORS FOR BULK MATERIALS**

- 00416 Chutes
- 02050 Conveyor accessories
- 00417 Conveyor belting
- 00418 Conveyors, apron
- 00419 Conveyors, belt
- 00420 Conveyors, bucket
- 01918 Conveyors, concentric
- 00421 Conveyors, cooling
- 00422 Conveyors, drag
- 00423 Conveyors, flexible
- 00424 Conveyors, flight
- 00425 Conveyors, fluidizing
- 00426 Conveyors, gravity
- 00427 Conveyors, hinge type
- 00428 Conveyors, magnetic
- 00429 Conveyors, other
- 00430 Conveyors, overhead track
- 00431 Conveyors, pneumatic
- 00432 Conveyors, portable
- 00433 Conveyors, roller
- 00434 Conveyors, rotary table
- 00435 Conveyors, rotary tubular
- 00436 Conveyors, screen
- 00437 Conveyors, screw
- 00438 Conveyors, size separation
- 00439 Conveyors, slat
- 00440 Conveyors, tray
- 00441 Conveyors, trolley
- 00442 Conveyors, vacuum
- 02051 Conveyors, vertical
- 00443 Conveyors, vibrating
- 00444 Conveyors, weighing
- 00445 Couplings, pneumatic conveyors
- 00446 Elevators, belt
- 01919 Elevators, belt, vertical
- 00447 Elevators, bucket
- 00448 Elevators, flighted belt
- 00449 Elevators, screw
- 00450 Hose, pneumatic conveyors
- 00451 Solids feeders, airlock
- 00502 Solids feeders, batch
- 00503 Solids feeders, constant weight
- 00504 Solids feeders, gravimetric
- 00505 Solids feeders, proportioning
- 00506 Solids feeders, volumetric
- 00452 Solids feeders, continuous flow
- 00453 Solids feeders, disc
- 02052 Solids feeders, high-pressure
- 00454 Solids feeders, natural frequency
- 00455 Solids feeders, ribbon
- 00456 Solids feeders, rotary
- 00457 Solids feeders, table
- 00458 Solids feeders, vibrating or oscillating

**LIFTING EQUIPMENT**

- 00460 Cranes
- 00461 Hoists

**PACKAGING CONTAINERS**

- 00469 Bags
- 00470 Barrels & drums

- 00471 Bottles
- 02140 Carton partitions
- 00472 Cartons
- 00473 Drums & drum liners, corrosion resistant

- 01977 Intermediate bulk containers
- 02222 Intermodal bulk containers
- 00474 Pails & cans

**PACKAGING EQUIPMENT**

- 00475 Bag closing machines
- 00476 Bag, empty, handling systems
- 00477 Bag filling machines
- 01871 Bag filling machines, vacuum
- 00478 Drum filling equipment
- 00479 Encapsulating equipment
- 00480 Packaging equipment, liquids
- 00481 Packaging equipment, solids
- 00482 Packers, bag
- 00483 Packers, drum
- 00484 Packers, vibrating
- 01872 Seamers, can, vacuum

**SOLIDS HANDLING EQUIPMENT & SYSTEMS, OTHER**

- 00460 Cranes
- 00461 Hoists
- 00462 Balers
- 00463 Barrel handling equipment
- 02223 Contained transfer couplings
- 00464 Drum handling equipment
- 00465 Materials handling systems
- 00466 Palletizers
- 00467 Robotic components
- 00468 Storage systems
- 00459 Valves, diverter conveyor
- 02053 Valves, powder

**WEIGHING, FEEDING**

- & PROPORTIONING EQUIPMENT**
- 00485 Batching & blending systems
- 00486 Proportioners
- 00487 Scales, automatic weighing
- 00488 Scales, bagging, filling
- 00489 Scales, checkweight
- 00490 Scales, continuous weighing
- 00491 Scales, conveying
- 00492 Scales, counting
- 00493 Scales, floor, platform
- 02486 Scales, forklift
- 02054 Scales, gas cylinder filling
- 00494 Scales, hopper
- 00495 Scales, portable
- 00496 Scales, railroad car
- 00497 Scales, recording
- 00498 Scales, remote indicating
- 00499 Scales, tank
- 00500 Scales, totalizing
- 00501 Scales, truck

**3. ELECTRICAL POWER GENERATION & TRANSMISSION****BEARINGS & BUSHINGS**

- 00508 Bearing isolators
- 00507 Bearings
- 00509 Bushings

**BOILERS, INDUSTRIAL**

- 00510 Ash conditioning systems
- 00511 Boiler accessories
- 02348 Boiler-cleaning services
- 00512 Boilers, automatic, packaged
- 00513 Boilers, carbon-monoxide fired
- 00514 Boilers, coal fired
- 00515 Boilers, fire tube
- 00516 Boilers, fluidized bed
- 00517 Boilers, integral furnace
- 00518 Boilers, natural-gas fired

- 00519 Boilers, oil fired
- 00520 Boilers, waste heat recovery
- 00521 Boilers, water tube

**CABLE & CONDUIT**

- 00522 Bus bars
- 00523 Conduit, cable trays & supports
- 00524 Conduit, electrical
- 00525 Wire & cable

**DRIVES, OTHER**

- 02474 Brakes
- 02475 Clutches
- 00526 Couplings, shaft
- 00527 Drives, belt
- 00528 Drives, chain
- 00529 Drives, conveyor
- 00530 Drives, crusher
- 00531 Drives, gear
- 00532 Drives, magnetic
- 00533 Drives, mixer
- 00534 Drives, pump
- 00535 Drives, silent chain
- 00536 Drives, variable speed, centrifuge
- 00537 Drives, variable speed, electrical
- 00538 Drives, variable speed, hydraulic
- 00539 Drives, variable speed, mechanical
- 00540 Drives, variable speed, mixer
- 00541 Gears
- 00542 Joints, universal
- 00543 Pulleys
- 02460 Rollers
- 00544 Shafting
- 00545 Speed reducers
- 00546 Sprockets
- 00547 Transmissions

**DRIVES, TURBINE**

- 01875 Generator drives, gas
- 01876 Generator drives, steam
- 00595 Turbines, combined steam-gas
- 00596 Turbines, mechanical drive, gas
- 00597 Turbines, mechanical drive, steam

**ELECTRICAL HEATING EQUIPMENT**

- 00548 Bands, electric heating
- 00549 Heaters, electric immersion
- 00550 Heaters, thermal fluid electric
- 00551 Jackets, electric heating
- 00552 Panels, infrared radiant
- 00553 Strips, electric heating
- 00554 Tape, electric heating

**ELECTRICAL & POWER GENERATION EQUIPMENT**

- 00555 Batteries & electrical storage equipment
- 00556 Cogeneration systems & equipment
- 00557 Engine-generator sets
- 00558 Engines, diesel
- 00559 Engines, gasoline
- 00560 Engines, LPG
- 00561 Engines, natural gas
- 00562 Expanders
- 00563 Generator-turbine sets
- 00564 Generators, electrical
- 00565 Power supplies, emergency
- LIGHTING FIXTURES**
- 00566 Lamps, incandescent
- 00567 Lamps, infrared
- 00568 Lamps, mercury vapor
- 00569 Lamps, photochemical
- 00570 Lamps, sodium vapor
- 00571 Lamps, ultraviolet
- 00572 Lighting equipment, emergency
- 00573 Lighting, explosion proof
- 00574 Lighting: panelboards, instruments & gages

**MOTOR CONTROLS**

- 00575 Actuators or starters, motor
- 00576 Governors, motor
- MOTORS, ELECTRIC**
- 00577 Motors, A.C.
- 00578 Motors, D.C.
- 00579 Motors, encapsulated
- 00580 Motors, enclosed, fan cooled
- 00581 Motors, explosion proof
- 01920 Motors, heat resistant
- 00582 Motors, induction
- 00583 Motors, pneumatic
- 00584 Motors, splashproof
- 01873 Motors, submersible
- 00585 Motors, synchronous
- 02143 Motors, U frame
- 00586 Motors, variable speed
- 00587 Motors, vertical
- 01921 Motors, water cooled
- OTHER ELECTRICAL EQUIPMENT**
- 00590 Circuit breakers
- 00591 Electrical equipment, other
- 00592 Solenoids
- 00593 Switches, electrical
- 00594 Switchgear & other power distribution equipment
- 01874 Transformers
- 02500 Transformers, constant voltage
- 02499 Transformers, ferroresonant
- 02498 Transformers, isolation
- 02497 Transformers, variable
- 02501 Twist lock equipment protectors
- RECTIFIERS**
- 00588 Rectifiers, germanium controlled
- 00589 Rectifiers, silicon controlled

**4. INSTRUMENTATION & CONTROLS****ACTUATORS, OPERATORS**

- 02055 Accumulators
- 00598 Actuators
- 02056 Cylinders, hydraulic
- 02057 Cylinders, pneumatic
- 00599 Valve operators, diaphragm
- 00600 Valve operators, electrohydraulic
- 00601 Valve operators, electropneumatic
- 00602 Valve operators, motor operated
- 00603 Valve operators, piston
- 01922 Valve operators, pneumatic
- 00604 Valve operators, solenoid
- 02224 Valve, position indicators
- 02058 Valve positioners, microprocessor equipped
- 02349 Valve positioners, other
- ANALYZERS, OFFSTREAM**
- 00605 Analyzers, air quality
- 02350 Analyzers, ammonia
- 00606 Analyzers, atomic absorption
- 00607 Analyzers, biological
- 02059 Analyzers, BOD
- 00608 Analyzers, carbon dioxide or monoxide
- 00609 Analyzers, chlorine
- 02144 Analyzers, chlorine, total
- 00610 Analyzers, chromatographic
- 00611 Analyzers, combustible gases
- 00612 Analyzers, combustion
- 00613 Analyzers, concentration
- 00614 Analyzers, conductivity
- 02060 Analyzers, corrosion rate
- 00615 Analyzers, dielectric
- 00616 Analyzers, electron diffraction
- 00617 Analyzers, emission
- 00618 Analyzers, environmental conditions



00619 Analyzers, fats & oils  
 00620 Analyzers, fluoride ion  
 00621 Analyzers, gas density  
 01923 Analyzers, heat of reaction  
 00622 Analyzers, hydrocarbons  
 00623 Analyzers, hydrogen  
 00624 Analyzers, infrared  
 00625 Analyzers, ion microprobe mass  
 00626 Analyzers, magnetic susceptibility  
 00627 Analyzers, mass spectrometer  
 00628 Analyzers, moisture content  
 02147 Analyzers, near infrared  
 00629 Analyzers, neutron activation  
 02146 Analyzers, nitrogen  
 00630 Analyzers, nitrogen oxide  
 02145 Analyzers, nitrogen, total  
 00631 Analyzers, nuclear magnetic resonance (NMR)  
 00632 Analyzers, oil content  
 00633 Analyzers, organic carbon  
 02148 Analyzers, organic carbon, total  
 02149 Analyzers, organic halogen, total  
 00634 Analyzers, oxygen content  
 02061 Analyzers, oxygen demand  
 02062 Analyzers, oxygen, dissolved  
 00635 Analyzers, ozone content  
 00636 Analyzers, particle size  
 02351 Analyzers, pH  
 00637 Analyzers, phosphorus  
 00638 Analyzers, photometric  
 00639 Analyzers, polarographic  
 01978 Analyzers, pore size  
 01877 Analyzers, porosity  
 02063 Analyzers, respirometry  
 00640 Analyzers, sodium ion concentration  
 00641 Analyzers, sound  
 00642 Analyzers, spectrometer  
 00643 Analyzers, spectrophotometer  
 00644 Analyzers, stack gases  
 00645 Analyzers, sulfur dioxide  
 02150 Analyzers, sulfur, total  
 01924 Analyzers, surface area  
 00646 Analyzers, surface composition  
 00647 Analyzers, suspended solids  
 02064 Analyzers, thermal  
 00648 Analyzers, thin film  
 01925 Analyzers, titration  
 01979 Analyzers, total solids  
 00649 Analyzers, ultraviolet  
 00650 Analyzers, vapor pressure  
 02352 Analyzers, VOCs  
 00651 Analyzers, water quality  
 00652 Detectors, dust  
 00653 Detectors, explosion  
 00654 Detectors, flame  
 00655 Detectors, gases  
 00656 Detectors, gases, combustible  
 00657 Detectors, gases, toxic  
 01980 Detectors, liquid-leak  
 00658 Detectors, metal  
 00659 Detectors, moisture  
 02065 Detectors, multisample  
 01926 Detectors, other  
 00660 Detectors, radiation  
 02066 Detectors, sludge blanket level  
 00661 Detectors, smoke  
 00662 Detectors, vibration  
 00663 Samplers, automatic  
 00664 Samplers, gas, air  
 00665 Samplers, groundwater  
 00666 Samplers, liquid  
 00667 Samplers, solids  
**ANALYZERS, ONSTREAM**  
 00668 Chromatographs, onstream

00669 Monitors, air quality  
 02353 Monitors, ammonia  
 00670 Monitors, carbon dioxide or monoxide  
 00671 Monitors, chlorine  
 00672 Monitors, colorimetric  
 00673 Monitors, combustible gases, or vapors  
 00674 Monitors, composition  
 00675 Monitors, conductivity  
 01981 Monitors, dispersion  
 02067 Monitors, dust  
 01982 Monitors, emissions, continuous  
 02354 Monitors, fouling  
 01927 Monitors, heat of reaction  
 00676 Monitors, humidity  
 00677 Monitors, hydrocarbon content  
 00678 Monitors, hydrogen cyanide content  
 00679 Monitors, hydrogen sulfide content  
 02068 Monitors, mercury content  
 02152 Monitors, nitrates  
 01878 Monitors, octane  
 00680 Monitors, oil content  
 02515 Monitors, opacity  
 02151 Monitors, organic carbon, total  
 00681 Monitors, oxygen content  
 01983 Monitors, particle size  
 00682 Monitors, pH  
 00683 Monitors, sodium ion concentration  
 02225 Monitors, specific ion  
 00684 Monitors, stack gases  
 01879 Monitors, sulfur  
 00685 Monitors, viscosity  
 02069 Monitors, VOCs  
 00686 Monitors, water quality  
 02070 Spectrometer accessories or services  
 00687 Spectrometers  
**COMPUTERS, PROCESS CONTROL**  
 00688 Analog process control computers  
 02504 Data line protection  
 00689 Direct digital process control computers  
 00690 Hierarchical process control computers  
 00691 Hybrid process control computers  
 00692 Input-output equipment  
 02502 Interference protectors  
 02503 Modem protectors  
 00693 Supervisory process control computers  
 02508 Surge suppression systems  
 02505 Wire-in interference filters  
 02506 Wire-in surge suppressors  
**CONTROLLERS**  
 00694 Controllers, air conditioning  
 00695 Controllers, batching or weighing  
 00696 Controllers, bin level  
 00697 Controllers, boiler  
 00698 Controllers, combustion  
 00699 Controllers, electric  
 02466 Controllers, electropneumatic  
 00700 Controllers, flow & flow ratio  
 00701 Controllers, humidity  
 00702 Controllers, hydraulic  
 00703 Controllers, liquid level  
 02355 Controllers, oxidation-reduction potential  
 00704 Controllers, pH  
 00705 Controllers, photoelectric  
 00706 Controllers, pneumatic  
 00707 Controllers, pressure

00708 Controllers, process  
 00709 Controllers, product  
 00710 Controllers, programmable  
 00711 Controllers, pump  
 00712 Controllers, reflux  
 00713 Controllers, SCR power  
 01984 Controllers, sludge level  
 00714 Controllers, temperature  
 00715 Controllers, time cycle  
 00716 Controllers, vacuum  
 00717 Controllers, viscosity  
 00718 Regulators, air  
 00719 Regulators, back pressure  
 00720 Regulators, draft  
 00721 Regulators, feedwater  
 00722 Regulators, flow  
 00723 Regulators, gas  
 00724 Regulators, pressure  
 00725 Regulators, temperature  
 00726 Regulators, vacuum  
**DATA PRESENTATION EQUIPMENT**  
 01880 Adapters, video graphic  
 00727 Comparators  
 01928 Consoles  
 00728 Counters  
 00729 Data logging systems  
 00730 Displays, cathode ray tube (CRT)  
 02356 Displays, liquid-crystal  
 00731 Panelboards  
 00732 Totalizers  
**INDICATORS**  
 00733 Alarms, annunciator  
 00734 Alarms, burglar & intrusion  
 00735 Alarms, carbon monoxide  
 00736 Alarms, combustible gases  
 00737 Alarms, combustion  
 00738 Alarms, flame  
 00739 Alarms, flow  
 00740 Alarms, humidity  
 00741 Alarms, liquid level  
 00742 Alarms, moisture  
 02226 Alarms, motion  
 02154 Alarms, other  
 00743 Alarms, portable (gas, vapor)  
 00744 Alarms, pressure  
 00745 Alarms, radiation  
 00746 Alarms, solids level  
 00747 Alarms, temperature  
 02153 Alarms, vibration  
 00748 Flowmeters, differential pressure  
 02357 Flowmeters, electromagnetic  
 00749 Flowmeters, hot wire  
 00750 Flowmeters, magnetic  
 00751 Flowmeters, mass  
 00752 Flowmeters, orifice plate  
 00753 Flowmeters, positive displacement  
 00754 Flowmeters, propeller  
 02401 Flowmeters, radar  
 00755 Flowmeters, rotameters  
 00756 Flowmeters, sonic  
 00757 Flowmeters, turbine  
 02227 Flowmeters, ultrasonic  
 02402 Flowmeters, variable area  
 00758 Flowmeters, vortex shedding  
 00759 Flowmeters, weirs & flumes  
 00760 Gages, density  
 00761 Gages, draft  
 00762 Gages, filter  
 00763 Gages, liquid level  
 02494 Gages, liquid level, sanitary  
 00764 Gages, mechanical force  
 00765 Gages, nuclear radiation  
 00766 Gages, pressure  
 00767 Gages, strain

00768 Gages, tank  
 00769 Gages, temperature  
 00770 Gages, thickness  
 00771 Gages, vacuum & differential pressure  
 00772 Gages, water  
 00773 Glasses, furnace  
 00774 Glasses, gage  
 00775 Glasses, sight flow  
 00776 Indicators, bin level  
 00777 Indicators, carbon monoxide  
 00778 Indicators, color  
 00779 Indicators, combustible gases  
 00780 Indicators, dewpoint or humidity  
 00781 Indicators, flow  
 00782 Indicators, liquid level  
 00783 Indicators, mass flow  
 00784 Indicators, moisture  
 00785 Indicators, other  
 00786 Indicators, pressure  
 00787 Indicators, solids level  
 00788 Indicators, specific gravity  
 00789 Indicators, temperature  
 00790 Indicators, turbidity  
 00791 Indicators, vacuum  
 00792 Indicators, valve position  
 00793 Indicators, viscosity  
 00794 Indicators, weight  
 02533 Sightglasses  
 00795 Thermistors  
 00796 Thermocouples  
 00797 Thermometers, bimetallic  
 00798 Thermometers, dial  
 00799 Thermometers, differential  
 02471 Thermometers, digital  
 00800 Thermometers, electrical  
 01881 Thermometers, infrared  
 00801 Thermometers, mercury  
 02470 Thermometers, precision  
 00802 Thermometers, recording  
 00803 Thermometers, resistance temperature detectors  
 00804 Thermometers, surface  
 00805 Thermostats  
 00806 Thermowells  
**MEASUREMENT & TESTING EQUIPMENT**  
 01882 Alloy identification equipment  
 02403 Balancing machinery  
 02157 Calibration gas standards  
 00807 Calibration & test equipment  
 00808 Calorimeters  
 02228 Cameras, high-speed  
 00809 Chambers, test  
 00810 Colorimeters  
 01985 Corrosion measurement equipment  
 00811 Density-measuring equipment  
 02156 Detectors, interface  
 00812 Detectors, leak  
 02160 Detectors, metal  
 00813 Dosimeters  
 02158 Electrodes, ion-sensitive  
 02159 Electrodes, pH  
 00814 Electrometers  
 01929 Enclosures, instrument  
 00815 Flash points, automatic  
 00816 Fluidic systems  
 00817 Galvanometers  
 01986 Gas dilution systems  
 01987 Gas sampling bags  
 00818 Gravimeters  
 00819 Humidistats  
 00820 Hydrometers  
 02155 Hygrometers  
 01930 Indexers, melt-flow

00821 Ion measurement or selection  
 00822 Laser systems  
 02161 Load cells  
 00823 Manometers  
 00824 Meters, air  
 00825 Meters, chlorine  
 02472 Meters, conductivity  
 00827 Meters, displacement  
 00828 Meters, electrical  
 00829 Meters, gas  
 00830 Meters, heat flow  
 00831 Meters, integrating  
 00832 Meters, orifice  
 00833 Meters, oxygen  
 00834 Meters, ozone  
 00835 Meters, pH  
 00836 Meters, recording  
 02473 Meters, salinity  
 00837 Meters, sludge  
 02456 Meters, surface tension  
 00838 Meters, telemetering  
 00839 Meters, turbidity  
 00840 Meters, ultrasonic  
 00841 Meters, ultraviolet  
 00842 Meters, vibration  
 00843 Meters, water  
 00844 Meters, zeta potential  
 01988 Microscopes  
 02071 Permeation tubes  
 00845 Photometers  
 00846 Psychrometers  
 00847 Pyrometers  
 00848 Refractometers  
 00849 Rheometers  
 00850 Salinometers  
 01883 Stroboscopes  
 00851 Tachometers  
 00852 Testers, cloud & pour point, automatic  
 01931 Testers, flash point  
 00854 Testers, hardness  
 00853 Testers, ring & ball  
 02404 Testers, tensile strength  
 00855 Testing equipment, other  
 00856 Timers  
 01884 Transducers, heat flow  
 02208 Viscometers, melt  
 00857 Viscosity or consistency instruments, other  
 00858 Voltmeters  
 00859 X ray & gamma ray equipment

**RECORDERS**

00867 Recorder parts & accessories  
 00860 Recorders, bin level  
 00861 Recorders, humidity  
 00862 Recorders, liquid flow  
 00863 Recorders, liquid level  
 00864 Recorders, mass flow  
 00865 Recorders, moisture  
 00866 Recorders, other  
 00868 Recorders, pressure  
 00869 Recorders, specific gravity  
 00870 Recorders, temperature  
 00871 Recorders, time  
 00872 Recorders, turbidity  
 00873 Recorders, viscosity

**TRANSMITTERS & DATA TRANSMISSION EQUIPMENT**

02464 Cables, fiberoptic  
 02465 Cables, other  
 00874 Converters, signal  
 02595 Data transmission, wireless  
 00875 Electrical equipment, intrinsic safety  
 00876 Radio remote control systems

00877 Relays, time delay  
 00878 Telemetering & data transmission systems  
 00879 Television, closed circuit  
 02072 Transducers  
 02495 Transmitters, capacitance, sanitary  
 01989 Transmitters, level  
 01932 Transmitters, mass flow  
 01933 Transmitters, pressure  
 02358 Transmitters, pressure-critical  
 01934 Transmitters, temperature

## 5. PROCESSING EQUIPMENT

### AIR CONDITIONING & REFRIGERATION EQUIPMENT

00880 Air conditioners  
 00881 Cryogenic equipment  
 00882 Dehumidifiers  
 00883 Humidifiers  
 02163 Refrigerant gases  
 00885 Refrigeration equipment, chillers  
 00886 Refrigeration equipment, freezers  
 00884 Refrigeration equipment & systems

### CENTRIFUGES

00893 Centrifuge parts & accessories  
 00894 Centrifuges, batch, automatic basket  
 00895 Centrifuges, batch, perforated basket  
 00896 Centrifuges, continuous, conical angle, perforated basket  
 00897 Centrifuges, continuous, pusher discharge  
 00898 Centrifuges, continuous, solid bowl, scroll discharge  
 00899 Centrifuges, disc, nozzle discharge  
 00900 Centrifuges, disc, solid bowl  
 00901 Centrifuges, disc, valve discharge  
 00902 Centrifuges, filter, continuous, screen bowl, scroll discharge  
 01885 Centrifuges, filter, inverting  
 00903 Centrifuges, laboratory or pilot plant  
 00904 Centrifuges, liquid-liquid  
 01935 Centrifuges, other  
 00905 Centrifuges, solid basket

### CLASSIFIERS & GRAVITY SEPARATORS

00906 Clarifiers, flotation  
 00907 Clarifiers, settling  
 00908 Classifiers, air  
 00909 Classifiers, cyclone  
 00910 Classifiers, hydraulic, flotation  
 00911 Classifiers, hydraulic, settling  
 00912 Classifiers, mechanical, magnetic  
 00913 Classifiers, mechanical, rotary  
 00914 Classifiers, mechanical, screening  
 00915 Classifiers, mechanical, vibrating  
 00916 Decanters  
 00917 Liquid-liquid processing  
 00918 Particle size control systems  
 00919 Thickeners, centrifugal  
 00920 Thickeners, gravity  
 00921 Thickeners, rake or sedimentation

### COOLING TOWER SYSTEMS

00922 Cooling towers  
 00923 Cooling towers, repair & upgrade  
 00924 Drift eliminators, cooling tower  
 00925 Spray nozzles, cooling tower

### CUSTOM FABRICATED EQUIPMENT

00926 Castings, foundries  
 00927 Claddings & coatings, custom  
 00928 Equipment, process, custom  
 01886 Equipment, process, custom,

cryogenic  
 00929 Extrusions, custom  
 00930 Formings, exotic metal, custom  
 00931 Lining applications, custom  
 00932 Moldings, custom  
 00933 Pipe & pipe systems, custom  
 00934 Plastic fabrication, custom  
 01936 Pultrusion, custom  
 00936 Reglassing  
 00935 Reinforced-plastics fabrication, custom

### DRYERS

00957 Dryer parts & accessories  
 00937 Dryers, air  
 00938 Dryers, apron  
 02359 Dryers, batch  
 00939 Dryers, belt  
 00940 Dryers, centrifugal  
 00941 Dryers, chamber  
 00942 Dryers, closed circuit  
 00943 Dryers, conical, vacuum  
 00944 Dryers, continuous  
 00945 Dryers, conveyor  
 00946 Dryers, desiccant, disposable cartridge  
 00947 Dryers, desiccant, package unit  
 01937 Dryers, drum  
 00948 Dryers, drum, rotary vacuum  
 00949 Dryers, electric  
 00950 Dryers, flash  
 00951 Dryers, fluidized bed  
 00952 Dryers, freeze  
 00953 Dryers, gas  
 00954 Dryers, infrared  
 00955 Dryers, mechanical press  
 01938 Dryers, microwave  
 01939 Dryers, oxygen-enriched air  
 01940 Dryers, paddle  
 00956 Dryers, pan  
 00958 Dryers, pulse combustion  
 00959 Dryers, radiant heat  
 02360 Dryers, radio frequency  
 00960 Dryers, refrigerated air  
 02233 Dryers, ring  
 00961 Dryers, rotary  
 00962 Dryers, screw flight  
 02164 Dryers, sheet forming  
 00963 Dryers, shelf, vacuum  
 02075 Dryers, spin flash  
 00964 Dryers, spiral screw  
 00965 Dryers, spray  
 00966 Dryers, steam jacketed  
 00967 Dryers, steam tube  
 00968 Dryers, suspension  
 00969 Dryers, tray  
 00970 Dryers, tray, vacuum  
 00971 Dryers, tumble  
 00972 Dryers, tunnel  
 00973 Dryers, V cone  
 00974 Dryers, vacuum  
 00975 Dryers, vacuum pan  
 00976 Dryers, vertical  
 00977 Dryers, vibrating

### DUST COLLECTORS & SEPARATORS

00978 Baghouses  
 00985 Dust collector parts & accessories  
 00979 Dust collectors, bag filtering  
 00980 Dust collectors, cartridge  
 00981 Dust collectors, centrifugal  
 00982 Dust collectors, cyclone  
 00983 Dust collectors, electrostatic precipitators  
 00984 Dust collectors, oil type  
 02235 Dust collectors, other  
 00986 Dust collectors, pulse jet

00987 Dust collectors, tray type  
 00988 Dust collectors, tubular  
 02234 Dust collectors, wet  
 02496 Dust removal equipment

**ELECTROCHEMICAL EQUIPMENT**

00989 Corrosion protection units, anodic  
 00990 Corrosion protection units, cathodic  
 00991 Electrodes: anodes & cathodes  
 02236 Electrodes, gas diffusion  
 00992 Electrolytic cells  
 00993 Electrophoresis units

**ENTRAINMENT SEPARATION EQUIPMENT**

00994 Defoamers, physical  
 00995 Mist eliminators  
 00996 Traps, air

**EVAPORATORS & CRYSTALLIZERS**

00997 Crystallizers, cooling  
 00998 Crystallizers, evaporative  
 00999 Crystallizers, freeze  
 01000 Crystallizers, melt  
 01001 Crystallizers, Oslo Krystal  
 01002 Crystallizers, scraped surface  
 01003 Crystallizers, trough  
 01004 Crystallizers, vacuum  
 01005 Crystallizers, vacuum pan  
 01006 Evaporative systems, mechanical recompression  
 01007 Evaporative systems, multiple effect  
 01008 Evaporative systems, thermal recompression  
 01009 Evaporators, agitated film  
 01010 Evaporators, climbing film  
 01011 Evaporators, coil  
 01012 Evaporators, falling film  
 01013 Evaporators, flash  
 01014 Evaporators, forced circulation  
 01015 Evaporators, horizontal tube  
 01016 Evaporators, low temperature  
 01017 Evaporators, plate type  
 01019 Evaporators, short path  
 01018 Evaporators, submerged combustion  
 01991 Evaporators, thin film  
 01019 Evaporators, vertical long tube  
 01020 Evaporators, vertical short tube (calandria)  
 01887 Evaporators, waste gas  
 02405 Evaporators, waste water  
 01992 Evaporators, wiped film  
 01941 Flakers, drum  
 01942 Ponds, evaporation

**FILTER MEDIA & AIDS**

01021 Felt, filter  
 01022 Filter aids, activated carbon  
 01023 Filter aids, asbestos  
 01024 Filter aids, cellulose  
 01025 Filter aids, diatomaceous earth  
 01026 Filter aids, perlite  
 01027 Filter aids, silica  
 01028 Filter aids, zeolite  
 01029 Filter bags, acidproof  
 01030 Filter bags, alkaliproof  
 01031 Filter bags, glass  
 01032 Filter bags, natural fiber  
 01033 Filter bags, synthetic fiber  
 01034 Filter cloth, acidproof  
 01035 Filter cloth, alkaliproof  
 01036 Filter cloth, cotton  
 01037 Filter cloth, glass  
 01038 Filter cloth, metallic  
 01039 Filter cloth, natural fiber  
 01040 Filter cloth, synthetic fiber  
 01041 Filter media, other

01042 Leaves, filter  
 01043 Pads, filter  
 01044 Paper, filter  
 01045 Plates, filter  
 01046 Tubes, filter  
**FILTRATION EQUIPMENT**  
 02076 Biofilters  
 01047 Dewatering, mechanical press  
 02361 Filter housings  
 01048 Filter parts & accessories  
 02362 Filter presses  
 01049 Filter systems  
 01050 Filters, activated carbon  
 01051 Filters, air  
 01052 Filters, bag  
 01053 Filters, belt  
 01054 Filters, cartridge  
 02077 Filters, centrifugal  
 01055 Filters, clarifying  
 01888 Filters, crossflow  
 01056 Filters, disc, pressure  
 01057 Filters, disc, vacuum  
 01058 Filters, drum, rotary gravity  
 01059 Filters, drum, rotary pressure continuous  
 01060 Filters, drum, rotary vacuum continuous  
 02363 Filters, electromagnetic  
 01061 Filters, gas  
 01062 Filters, gravity, porous bed  
 02364 Filters, HEPA  
 01063 Filters, horizontal belt, vacuum  
 02237 Filters, hydraulic  
 01064 Filters, jacketed  
 01065 Filters, leaf, horizontal, pressure  
 01066 Filters, leaf, vacuum  
 01067 Filters, leaf, vertical, pressure  
 02511 Filters, magnetic  
 01889 Filters, membrane  
 02078 Filters, microfiltration  
 02079 Filters, nanofiltration  
 01068 Filters, nutsche  
 02461 Filters, oil removal  
 02165 Filters, other  
 01069 Filters, pan  
 01070 Filters, pipeline  
 01071 Filters, plate & frame  
 02238 Filters, polymer  
 01072 Filters, porous metal  
 01073 Filters, portable  
 01074 Filters, precoat  
 01075 Filters, pressure  
 01076 Filters, refrigerated  
 01077 Filters, sand  
 02239 Filters, self-cleaning  
 01078 Filters, tilting pan vacuum  
 01079 Filters, tray  
 01080 Filters, tubular  
 02080 Filters, ultrafiltration  
 01081 Filters, vibrating  
 01082 Filters, water  
 02526 Microfiltration equipment  
 01083 Screw presses  
 01084 Strainers  
**HEAT EXCHANGERS, CONDENSERS & COOLERS**  
 01085 Aftercoolers  
 01086 Condensate return systems  
 01087 Condensers, air cooled  
 01088 Condensers, barometric  
 01089 Condensers, coil  
 01090 Condensers, evaporative refrigerant  
 01091 Condensers, fractional  
 01092 Condensers, jet ejector  
 01890 Condensers, plate

01093 Condensers, reflux  
 01094 Condensers, refrigerant  
 01095 Condensers, shell & tube  
 01096 Condensers, steam  
 01097 Condensers, surface  
 01098 Condensers, tubular  
 01099 Condensers, vapor  
 01100 Coolers, air cooled  
 01101 Coolers, belt  
 01102 Coolers, brine  
 01103 Coolers, cascade  
 01104 Coolers, closed circuit  
 01105 Coolers, coil  
 01106 Coolers, drum  
 01107 Coolers, evaporative  
 01108 Coolers, finned tube  
 01109 Coolers, flash  
 01110 Coolers, plate  
 01111 Coolers, rotary  
 01112 Coolers, screw  
 01945 Coolers, spray  
 01151 Coolers, vortex tube  
 01113 Coolers, water  
 01114 Desuperheaters  
 01115 Economizers  
 01116 Heat exchanger parts & accessories  
 01117 Heat exchangers, air cooled  
 02366 Heat exchangers, all-welded  
 01118 Heat exchangers, bayonet  
 01119 Heat exchangers, cascade  
 02081 Heat exchangers, ceramic  
 01120 Heat exchangers, coil  
 01121 Heat exchangers, direct contact steam  
 01122 Heat exchangers, double pipe  
 01123 Heat exchangers, falling film  
 01124 Heat exchangers, finned tube  
 01125 Heat exchangers, glass  
 01126 Heat exchangers, graphite  
 01127 Heat exchangers, jacketed pipe  
 01128 Heat exchangers, panel  
 01129 Heat exchangers, plate  
 02365 Heat exchangers, plate coil  
 02240 Heat exchangers, plate fin  
 01130 Heat exchangers, PTFE tube  
 01131 Heat exchangers, scraped surface  
 01132 Heat exchangers, screw flight  
 01133 Heat exchangers, shell & tube  
 01134 Heat exchangers, spiral  
 01993 Heat exchangers, tantalum  
 01994 Heat exchangers, titanium  
 01135 Heat exchangers, U tube  
 01995 Heat exchangers, zirconium  
 01136 Heat transfer systems  
 01943 Heaters, microwave  
 01137 Heaters, process liquid  
 01138 Heaters, process slurry  
 01944 Inserts, heat-exchanger tube  
 01139 Preheaters  
 01140 Reboilers  
 01141 Solar heating systems & supplies  
 01142 Superheaters  
 01143 Troughs, cooled or heated  
 01144 Waste heat recovery units  
**HEAT TRANSFER MEDIA**  
 01145 Heat transfer fluids, cooling fluids  
 01146 Heat transfer fluids, heating fluids  
 01819 Heat transfer fluids, other  
 02509 Hot oils  
 02510 Thermal fluids  
**HEATING & COOLING EQUIPMENT, OTHER**  
 01147 Air preheat systems  
 01148 Baths, constant temperature  
 02241 Chillers, recirculating

01149 Chilling rolls  
 01150 Coils  
 01152 Gaskets, plate heat exchanger  
 02082 Generators, steam  
 01153 Heat pumps  
 01154 Heaters, air & gas  
 01155 Heaters, bayonet  
 01156 Heaters, blast  
 01157 Heaters, cartridge  
 02207 Heaters, convection  
 01158 Heaters, dielectric  
 01159 Heaters, direct fired  
 01160 Heaters, drum  
 01161 Heaters, feedwater  
 01162 Heaters, finned tube  
 01163 Heaters, flat tube  
 01164 Heaters, gas fired  
 01165 Heaters, helical coil  
 01166 Heaters, immersion  
 01167 Heaters, indirect fired (waterbath)  
 01168 Heaters, induction  
 01169 Heaters, infrared  
 01170 Heaters, instantaneous  
 01171 Heaters, jacketed  
 02367 Heaters, mats  
 01172 Heaters, molten salt  
 01173 Heaters, panel  
 01174 Heaters, pipeline  
 01175 Heaters, plate  
 01176 Heaters, portable  
 01177 Heaters, ring  
 01178 Heaters, sandwich type  
 01179 Heaters, screw flight  
 01180 Heaters, shelf, tray  
 01181 Heaters, space  
 01182 Heaters, spiral  
 01183 Heaters, steam injection  
 01184 Heaters, submerged combustion  
 01185 Heaters, tank car  
 01186 Heaters, thermal liquid  
 01187 Heaters, tubular  
 01188 Heaters, unit  
 02083 Recuperators  
 01189 Sterilizers  
 02368 Tracing, pipe  
 01190 Vaporizers  
**KILNS, OVENS & FURNACES**  
 01191 Burners, coal  
 01192 Burners, combination fuel  
 01193 Burners, gas  
 01194 Burners, oil  
 01195 Calciners, fluidizing  
 01196 Calciners, rotary  
 01197 Furnaces, annealing  
 01198 Furnaces, cracking  
 01199 Furnaces, electric  
 01200 Furnaces, fluid bed  
 01201 Furnaces, gas burning  
 01202 Furnaces, hearth  
 01203 Furnaces, high pressure  
 01204 Furnaces, high temperature  
 01205 Furnaces, induction  
 01206 Furnaces, melting  
 01207 Furnaces, muffle  
 01208 Furnaces, multiple hearth  
 01209 Furnaces, plasma  
 01210 Furnaces, radiant heating  
 01211 Furnaces, rotary hearth  
 01212 Furnaces, vacuum  
 01213 Furnaces, vertical  
 01214 Kiln, oven & furnace accessories  
 01215 Kilns, fluidizing  
 01216 Kilns, rotary  
 01217 Kilns, vertical transfer  
 01218 Ovens, drying

01219 Ovens, electric  
 01220 Ovens, infrared  
 01946 Ovens, microwave  
 01221 Ovens, radiant heating  
 01222 Ovens, vacuum  
 01223 Roasters, food products  
**MIXING EQUIPMENT FOR FLUIDS**  
 01224 Homogenizers  
 01947 Homogenizers, high pressure  
 01225 Liquid-mixer parts & accessories  
 01226 Mixers, air driven  
 01227 Mixers, anchor  
 01228 Mixers, barrel, drum, carboy  
 01229 Mixers, batch  
 01230 Mixers, bottom entering  
 01231 Mixers, chilled  
 01232 Mixers, cone  
 01233 Mixers, continuous  
 01234 Mixers, disc  
 01997 Mixers, gas-liquid, high intensity  
 01235 Mixers, gate  
 01236 Mixers, heated  
 01237 Mixers, jet  
 01238 Mixers, paddle  
 01239 Mixers, pipeline (inline)  
 01240 Mixers, pony  
 01241 Mixers, portable  
 01242 Mixers, pressure  
 01243 Mixers, propeller  
 01244 Mixers, side entering  
 01245 Mixers, slurry  
 01246 Mixers, static  
 01247 Mixers, tank car  
 01248 Mixers, top entering  
 01249 Mixers, turbine  
 01250 Mixers, ultrasonic  
 01251 Mixers, vacuum  
 01998 Mixing equipment for gas, air  
**MIXING EQUIPMENT FOR SOLIDS & FLUIDS**  
 02407 Batching & blending systems  
 01252 Blenders, cone  
 01253 Blenders, continuous  
 01254 Blenders, horizontal  
 01255 Blenders, inline  
 01256 Blenders, liquid feed  
 01948 Blenders, pneumatic  
 01257 Blenders, ribbon  
 01258 Blenders, spiral  
 01259 Blenders, tumbling V  
 01261 Mixers, continuous kneaders  
 01262 Mixers, double arm kneaders  
 01263 Mixers, gravity flow  
 01264 Mixers, high shear  
 02167 Mixers, magnetically coupled  
 01265 Mixers, motionless  
 01266 Mixers, other solid-liquid  
 01267 Mixers, pan  
 01268 Mixers, planetary  
 01269 Mixers, ribbon  
 01270 Mixers, roller  
 01271 Mixers, rotary blade  
 01272 Mixers, rotary disc  
 01273 Mixers, rotary drum  
 01274 Mixers, screw  
 02166 Mixers, sealless  
 01275 Mixers, spiral ribbon  
 01276 Mixers, spiral screw  
 01277 Mixers, vacuum tumble  
 01278 Mixers, vertical stationary  
 02084 Mixers, vibrating  
 01279 Mullers  
 01260 Solid-liquid-mixer parts & accessories



**PACKINGS, TRAYS FOR TOWERS & COLUMNS**

01281 Packings, tower & column, ceramic  
01282 Packings, tower & column, metal  
01283 Packings, tower & column, plastic  
02085 Packings, tower & column, random  
02086 Packings, tower & column, structured  
01284 Packings, trays for towers & columns  
01285 Saddles, polyethylene, tower packings  
01286 Trays & tower internals

**PROCESS VESSELS & REACTORS**

01287 Accumulators & collectors  
02520 Acid-gas removal systems  
01288 Autoclaves  
01289 Biochemical equipment  
01999 Bioreactors  
01290 Coalescers  
01291 Deaerators, degasifiers  
01292 Digesters, cookers  
01293 Extraction equipment  
01294 Fermentation equipment & fermentors  
02000 Generators, carbon dioxide  
02001 Generators, carbon monoxide  
01295 Generators, hydrogen  
02459 Generators, hydrogen chloride  
01296 Generators, inert gas  
01297 Generators, nitrogen  
02003 Generators, other substances  
01298 Generators, oxygen  
01299 Generators, ozone  
02002 Generators, synthesis gas  
01300 Heads, process vessel  
02529 Hydrogen gas processing plants  
01301 Kettles, agitated  
01302 Kettles, caustic  
01303 Kettles, crystallizing  
01304 Kettles, electrically heated  
01305 Kettles, jacketed  
01306 Kettles, lined  
01307 Kettles, melting  
01308 Kettles, special metals  
01309 Kettles, vacuum  
02530 Natural gas processing plants  
02392 Oxidizers, catalytic  
02409 Oxidizers, regenerative  
01310 Polymerizers  
01311 Reactors, continuous  
01312 Reactors, cooled, heated  
01313 Reactors, fluid bed  
02168 Reactors, gas-liquid  
01314 Reactors, hollow flight  
01315 Reactors, jacketed  
01316 Reactors, jacketed, dimple  
01317 Reactors, jacketed, half-pipe  
01318 Reactors, lined, glass  
01319 Reactors, lined, metal  
01949 Reactors, loop  
01320 Reactors, pilot plant  
02004 Reactors, plastic lined  
01321 Reactors, rotary blade  
01322 Reactors, rotary disc  
01323 Reactors, scraped surface  
01324 Separators  
01325 Sublimers  
02528 Syngas generation units  
01326 Vapor collectors  
01327 Vessel closures  
02242 Vessel heads  
02005 Vessels, plastic lined

01328 Vessels, pressure, cryogenic  
01329 Vessels, pressure, custom  
01330 Vessels, pressure, jacketed, dimple  
01331 Vessels, pressure, multilayered heavy wall  
01332 Vessels, pressure, safety sight glass  
01333 Washers, continuous belt  
01334 Washers, grit  
01336 Washers, horizontal vacuum filter  
01335 Washers, spray

**REACTION & SEPARATION EQUIPMENT, OTHER**

02369 Adsorption systems, pressure swing  
02370 Adsorption systems, temperature swing  
01337 Aerators  
01338 Atomizers  
01891 Chromatography, production-scale equipment  
02172 Cleanroom equipment and supplies  
01339 Diffusers, spargers  
02170 Diffusion dialysis systems  
01340 Disinfectors, ultraviolet  
01341 Diverters  
01950 Extractors, centrifugal  
01342 Membrane systems for gases  
01343 Membrane systems for liquids  
01951 Mixer-settlers  
02169 Monomer-recovery systems  
01344 Nozzles, atomizing  
01345 Nozzles, mixing  
01346 Nozzles, spray  
02243 Oil purification equipment  
02006 Pervaporation equipment  
02087 Regenerators for activated carbon  
01347 Separators, fluidizing  
01348 Separators for metals  
02088 Solvent extraction systems  
01349 Solvent recovery systems  
02244 Solvent recycling systems  
01350 Sprayers  
02175 Strippers, air  
01892 Supercritical fluid extraction processing

**SCREENING EQUIPMENT**

01351 Screening  
01352 Screens, air  
01353 Screens, bar  
01354 Screens, centrifugal  
01355 Screens, cylindrical  
01356 Screens, grizzly  
01357 Screens, gyratory  
01358 Screens, milled slot  
01359 Screens, perforated plate  
01360 Screens, profile rod  
01361 Screens, profile wire  
01362 Screens, rotary  
01363 Screens, stationary  
01364 Screens, synthetic  
01365 Screens, testing  
01366 Screens, vibrating  
01367 Screens, washing  
01893 Screens, wire  
01368 Separators, magnetic  
01369 Sieves  
01370 Sifters, sifting machines  
01371 Wire cloth  
01372 Wire mesh

**SCRUBBERS**

01373 Scrubbers, centrifugal  
01374 Scrubbers, conical

01375 Scrubbers, cyclone  
01894 Scrubbers, fluidized bed  
01376 Scrubbers, fume, gas  
01377 Scrubbers, impingement baffle  
01378 Scrubbers, jet  
01379 Scrubbers, oil mist  
01380 Scrubbers, orifice  
01381 Scrubbers, packed column  
01382 Scrubbers, plate column  
01383 Scrubbers, rotary  
01384 Scrubbers, spray  
01385 Scrubbers, venturi  
01386 Scrubbers, wire mesh tray

**SIZE REDUCTION EQUIPMENT**

01387 Breakers  
01388 Chippers  
01389 Comminutors  
01952 Crusher-dryers  
01390 Crushers, cone  
01391 Crushers, fluid energy  
01392 Crushers, gyratory  
01393 Crushers, impact  
01394 Crushers, jaw  
01395 Crushers, prebreaker  
01396 Crushers, rotary  
01397 Crushers, rotary blade  
01398 Crushers, saw tooth  
01399 Disintegration equipment parts & accessories  
01400 Flakers  
01401 Hogs

01402 Lumpbreakers  
01403 Lumpbreakers for solid & liquid systems  
01404 Mills, attrition  
01405 Mills, ball  
01406 Mills, cage  
01407 Mills, colloid  
01408 Mills, cone  
01409 Mills, disc  
01410 Mills, grinding  
01411 Mills, hammer  
01412 Mills, homogenizing  
01413 Mills, impact  
01414 Mills, jacketed ball  
01415 Mills, jet  
02171 Mills, other  
01416 Mills, pebble  
01417 Mills, pug  
01418 Mills, ring roll  
01419 Mills, rod  
01420 Mills, roller  
01421 Mills, tube  
01422 Mills, tumbling  
01423 Mills, vertical  
01424 Refiners, particle size  
01425 Shredders

**TOWERS & COLUMNS**

01426 Columns, absorption or adsorption  
01427 Columns, bubble cap  
01428 Columns, contacting or mixing  
01429 Columns, custom fabricated  
01895 Columns, fluidized bed  
02458 Columns, graphite  
01430 Columns, ion exchange  
01431 Columns, packed  
01432 Columns, reciprocating plate  
01433 Columns, rotary blade  
01434 Columns, rotary disc  
01435 Columns, scraped film  
01436 Columns, thin film  
01437 Columns, vacuum  
01438 Columns, valve tray  
01439 Columns, wire mesh tray  
01440 Distillation columns, automatic

packaged unit  
01441 Distillation columns, molecular distillation  
01442 Distillation columns, sieve tray  
01443 Distillation columns, steam stripping  
01444 Distillation columns, vapor compression  
02007 Online diagnostics of columns  
01445 Tower parts & accessories

**WATER TREATMENT EQUIPMENT**

01472 Boiler feedwater systems  
02490 Cooling-water treatment, chemical  
02491 Cooling-water treatment, non-chemical  
01473 Desalination units  
01953 Electrolysis units  
01474 Hypochlorinators  
01475 Ion exchanger equipment  
01476 Ozonators  
01477 Precipitators, water treating  
01478 Resins, ion exchange  
01479 Reverse osmosis systems  
02177 Ultrafiltration systems  
02009 Ultraviolet disinfection systems  
01480 Water-conditioning package systems  
01481 Water pollution systems  
02492 Water treatment control equipment

**6. ENGINEERING MATERIALS****ALUMINUM & ALUMINUM ALLOYS**

01482 Aluminum  
01483 Aluminum alloys

**CERAMICS, INCLUDING GLASS**

01490 Asbestos abatement  
01491 Asbestos materials  
01492 Carbides  
01493 Carbon & graphite  
02247 Fibers, mineral  
01496 Fused silica  
01494 Glass  
01495 Porcelain & stoneware, chemical  
01896 Powders, ceramic  
01954 Silicon carbide  
01497 Tile

**COMPOSITES**

02371 Carbon-carbon composites  
01484 Ceramic metals  
01485 Clad metals

**COPPER & COPPER ALLOYS**

01486 Brass  
01487 Bronze  
01488 Copper  
01489 Copper alloys, other

**INSULATION MATERIALS**

01498 Insulation, asbestos replacement  
01499 Insulation, block  
01897 Insulation, cements  
01500 Insulation, ceramic fiber  
01501 Insulation, ceramic foam  
01502 Insulation, coatings & sealers  
01503 Insulation, glass fiber  
01504 Insulation, glass foam  
01505 Insulation, graphite  
01506 Insulation, high temperature  
01507 Insulation, low temperature  
02482 Insulation, mica  
01508 Insulation, mineral wool  
01509 Insulation, perlite  
01510 Insulation, pipe  
01511 Insulation, refractory  
01512 Insulation, rock wool

01513 Insulation, tank  
01514 Insulation, urethane foam  
01515 Jacketing, insulation

#### **IRON & IRON ALLOYS**

01516 Cast irons  
01517 Cast irons, alloy  
01518 Cast irons, high-silicon  
01519 Ductile iron  
01520 Wrought iron

#### **LUBRICANTS**

02248 Lubricants, engine oil  
02249 Lubricants, greases  
02250 Lubricants, industrial oils  
02251 Lubricants, process oils

#### **MATERIALS FOR BUILDINGS & BUILDING CONSTRUCTION**

01521 Decking  
01522 Film, gas barrier  
01523 Flooring, acid resistant  
02092 Flooring, aluminum  
01524 Flooring, asphalt  
01525 Flooring, brick  
01526 Flooring, carbon  
02093 Flooring, fiberglass  
01527 Flooring, iron & steel  
01528 Flooring, metal grid  
01529 Flooring, rubber  
01530 Flooring, skid resistant  
01531 Flooring, vinyl  
01532 Wall materials, chemically resistant

#### **METALS & ALLOYS, OTHER NONFERROUS**

01533 Beryllium & alloys  
01534 Chromium & alloys  
01535 Cobalt alloys  
02182 Gold & alloys  
02183 Indium & alloys  
01537 Lead & alloys  
01538 Magnesium  
01539 Molybdenum & alloys  
01536 Niobium  
02181 Palladium & alloys  
01540 Platinum & alloys  
02534 Selenium  
01541 Silver & alloys  
01542 Tantalum & alloys  
02535 Tellurium  
02536 Thallium  
01543 Tin & alloys  
01544 Titanium & alloys  
01545 Tungsten & alloys  
01546 Zinc & alloys  
01547 Zirconium

#### **NICKEL & NICKEL ALLOYS**

28110 Nickel  
28120 Nickel alloys  
28130 Nickel aluminide

#### **PLASTICS MATERIALS**

01550 Acetals  
02252 Acrylic copolymers  
01551 Acrylics  
02253 Acrylonitrile-butadiene-styrenes  
01898 Alkyds  
01899 Amino resins  
01552 Cellulose acetate butyrate  
01553 Epoxies  
01554 Fiberglass-epoxy  
01555 Fiberglass-phenolic  
01556 Fiberglass-polyester  
01557 Fluorocarbons  
02254 Fluoroplastics, other  
02255 Foams, plastic  
01558 Furans  
02180 Liquid crystal polymer  
01559 Nylon  
01560 Phenolics

01561 Plastics, other  
01563 Polycarbonates  
01564 Polyesters  
01565 Polyethers, chlorinated  
01566 Polyethylenes  
01567 Polymers, ABS  
02179 Polyphenylene sulfide  
01568 Polypropylenes  
02256 Polytetrafluoroethylene  
01570 Polyvinylidene chlorides  
01569 PVCs  
01562 Silicones  
02527 Thermoplastic elastomers

#### **PROTECTIVE COATINGS & LININGS**

02178 Adhesives  
02094 Coatings, acrylic  
01571 Coatings, ceramic  
01572 Coatings, diffusion  
01573 Coatings, epoxy  
01574 Coatings, fluoropolymer  
01575 Coatings, metallic  
02419 Coatings, noise reducing  
02420 Coatings, nonreflective  
02421 Coatings, nonskid  
02422 Coatings, nonslip  
02423 Coatings, nonstick  
02257 Coatings, nylon  
02185 Coatings, other plastics  
01576 Coatings, phenolic  
01577 Coatings, plastic  
02258 Coatings, powder  
01578 Coatings, PVC  
01579 Coatings, refractory  
01580 Coatings, rubber  
01581 Coatings, silicate  
01900 Coatings, urethane  
02010 Coatings, vinyl ester  
01582 Emulsion, coal tar pitch  
01901 Linings, basalt  
01583 Linings, butyl  
01584 Linings, cements & mortars  
01585 Linings, ceramic  
01586 Linings, chlorinated polyethylene  
01587 Linings, chlorosulfonated polyethylene

01588 Linings, epoxy  
01589 Linings, fluoroplastic  
01590 Linings, glass  
01591 Linings, glass-reinforced plastic  
01592 Linings, metal  
01593 Linings, neoprene  
01594 Linings, polyethylene  
01595 Linings, refractory  
01596 Linings, rubber  
01597 Linings, saran  
01902 Linings, urethane  
01598 Linings, vinyl  
01599 Paints  
02095 Protective tapes  
02184 Sealants

#### **REFRACTORY MATERIALS**

01600 Anchors, refractory  
01601 Castables  
01602 Firebrick  
02259 Foams, refractory  
01603 Ramming mixes  
01604 Refractories  
01605 Refractories, gunning  
01606 Refractory mortars & cements

#### **RUBBER & RUBBERLIKE MATERIALS**

01607 Rubber, acrylic  
01608 Rubber, butyl  
01609 Rubber, chlorinated polyethylene  
01610 Rubber, chlorosulfonated polyethylene

01611 Rubber, ethylene propylene  
01612 Rubber, fluoroelastomers  
01613 Rubber, natural  
02260 Rubber, natural, epoxidized  
01614 Rubber, neoprene  
01615 Rubber, nitrile  
01616 Rubber, polybutadiene  
01617 Rubber, polysulfide  
01618 Rubber, PVC  
01619 Rubber, silicone  
01620 Rubber, styrene butadiene  
01621 Rubber, synthetic, other  
01622 Rubber, urethane

#### **STAINLESS STEELS**

01623 Stainless steels, AISI 200 series  
01624 Stainless steels, AISI 300 series  
01625 Stainless steels, AISI 400 series  
01626 Stainless steels, AISI 500 series  
01627 Stainless steels, cast

#### **STEELS**

01628 Carbon steels  
01629 High alloy steels  
01630 Low alloy steels  
01631 Medium alloy steels

## **7. PLANT MAINTENANCE & PERSONNEL SAFETY**

#### **CLEANING EQUIPMENT & SERVICES**

01632 Cleaners & refacers, tube  
01633 Cleaning chemicals & services  
01634 Cleaning equipment, blast  
01635 Cleaning equipment, chemical  
01636 Cleaning equipment, high-pressure liquid  
01637 Cleaning equipment, mechanical  
02011 Cleaning equipment, pharmaceutical  
01638 Cleaning equipment, steam  
01903 Cleaning equipment, tank cleaning  
01639 Cleaning equipment, ultrasonic & sonic  
01640 Cleaning parts & accessories  
02096 Sweepers  
01641 Vacuum cleaning systems  
01642 Washers

#### **EQUIPMENT REPAIR & REBUILDING**

01643 Fans, repair & rebuilding  
02373 Ladder systems  
01644 Pipeline rehabilitation processes  
02097 Pressure vessel repair  
01645 Pump repair  
01955 Scaffolding services  
01646 Valve repair  
01647 Weld heat-treating

#### **FIRE PROTECTION EQUIPMENT**

01648 Deluge systems  
01649 Fire alarm systems  
01650 Fire blankets  
01651 Fire detection systems  
01652 Fire extinguishers, portable  
01653 Fire extinguishing systems, carbon dioxide  
01654 Fire extinguishing systems, dry chemical  
01655 Fire extinguishing systems, foam  
01656 Fire extinguishing systems, halogenated hydrocarbon  
01657 Fire hydrants  
02186 Fire pumps  
02012 Hose reels  
01658 Smoke detection systems  
02262 Smoke suppression systems  
02374 Spill response kits  
01659 Sprinkler systems

#### **MAINTENANCE TOOLS & EQUIPMENT & REPLACEMENT PARTS**

01660 Alloys, brazing  
02263 Alloys, soldering  
02521 Borescopes  
01661 Bits, pipe or tube drill  
01662 Expanders, tube  
01663 Fasteners  
01664 Jacks, screw  
01665 Leak sealing service  
01666 Lubricating equipment  
02264 Machinery-alignment equipment  
02190 Patching compounds  
01904 Plant maintenance services  
01667 Refacers, heat-exchanger tube plates  
01668 Rods, welding  
02265 Shaft-alignment equipment  
01669 Spray equipment, thermal  
01670 Stud tensioners, hydraulic  
02455 Testing equipment, corrosion  
02266 Testing equipment, high pressure  
01671 Testing equipment, nondestructive  
02013 Tools & equipment, other  
01672 Tools, hand  
02189 Tools, non-sparking  
01673 Tools, piping  
01674 Tools, power  
01675 Welding equipment

#### **NOISE & VIBRATION SUPPRESSION EQUIPMENT**

01676 Absorbers, vibration  
02267 Analyzers, vibration  
01677 Burner mufflers  
01678 Dampeners, pulsation  
01679 Earmuffs, earplugs  
01680 Insulation, acoustical  
01681 Louvers, noise control  
01682 Noise enclosures & barriers  
01683 Noise surveillance equipment  
01684 Silencers, exhaust  
01685 Silencers, inline  
01686 Silencers, intake  
01687 Testing instruments, vibration

#### **SAFETY EQUIPMENT & SYSTEMS**

02375 Air conditioners, personal  
02188 Air purifiers  
01688 Antiskid materials  
01689 Aprons  
01690 Arresters, exhaust spark  
01905 Arresters, flame deflagration or detonation  
01691 Arresters, flame, tank vent, inline  
01692 Arresters, surge  
01693 Belts, security  
01694 Blowout doors & panels  
01695 Canisters, mask  
02098 Cardiopulmonary resuscitation (CPR) training and aids  
01696 Climbing safety equipment  
01697 Clothing, chemical resistant  
01698 Clothing, fire fighting  
01699 Clothing, staticfree  
01700 Containers, safety  
01701 Coveralls  
01702 Creams, skin protecting  
01703 Emergency escape equipment  
02014 Emergency oxygen units  
02191 Emergency shutdown systems  
02015 Explosion isolation  
01704 Explosion suppression systems  
02016 Explosion vents  
01705 Face shields  
01706 Fire shields  
01707 Gas masks



01708 Glasses, safety  
 02099 Glove boxes  
 01709 Gloves  
 02377 Guard rails  
 02187 Harnesses  
 01710 Hats, safety  
 01711 Hearing protectors  
 01712 Kits, first aid  
 01713 Lifelines  
 01714 Liners, helmet  
 01715 Marking & labeling systems  
 02100 Medical equipment  
 02376 Nets, safety  
 01716 Nozzles, fire fog  
 02101 Pipe markers  
 02102 Pressurization systems  
 02103 Purge systems  
 01717 Railroad safety devices  
 01718 Respirators  
 01719 Resuscitators  
 01720 Rupture discs  
 02601 Rupture Panels  
 02268 Safety audits  
 01721 Shoes, safety  
 01722 Showers, emergency  
 01723 Sinks, eye or face emergency  
 02484 Sleeves, protective  
 01724 Static detection & elimination systems  
 01725 Storage cabinets  
 01726 Stretchers  
 02104 Suction units  
 01727 Testing equipment, dust  
 02269 Testing equipment, emergency valves  
 01728 Testing equipment, gases & vapors  
 01729 Valve & flange covers  
 02105 Valve tags  
 01730 Vests, safety  
 02106 Voiced evacuation systems

## 8. DESIGN, ENGINEERING, CONSTRUCTION SERVICES

### ENGINEERING SERVICES

02395 Arbitration, engineering  
 02270 Consultants, corrosion protection  
 02538 Consultants, double containment systems, design & installation  
 01731 Consultants, engineering  
 02537 Consultants, high purity process design  
 02539 Consultants, high integrity process testing  
 02271 Consultants, ISO compliance  
 01906 Consultants, materials  
 01956 Consultants, safety & health  
 02531 Consultants, security vulnerability assessments  
 02381 Consultants, water treatment  
 02410 Contract manufacturing systems  
 01733 Custom processing  
 02378 Database services  
 02411 Engineering, biochemical & biotech  
 02379 Engineering: clean rooms  
 01734 Engineering: construction & field erection  
 01907 Engineering: cryogenic equipment  
 02512 Engineering: equipment inspection & expediting  
 01957 Engineering: facilities planning  
 02512 Engineering: fire protection  
 01735 Engineering: instrumentation & control systems

02107 Engineering: modular process systems  
 01736 Engineering: packaged pilot plants  
 02108 Engineering: pilot plants  
 01737 Engineering: plant design  
 02193 Engineering: plant modernization  
 01738 Engineering: pollution & environmental services  
 01739 Engineering: process design  
 02194 Engineering: process modeling  
 02195 Engineering: procurement  
 02017 Engineering: project management  
 01958 Engineering: research  
 02109 Equipment testing  
 01740 Equipment, used: procurement & supply  
 02272 Ion-exchange-resin regeneration  
 01959 ISO certification  
 02463 Meteorological services  
 02412 Pilot plant services  
 02110 Plant decommissioning and dismantling  
 02413 Plant documentation services  
 02273 Plant relocation  
 02018 Process safety management services  
 02192 Risk analysis  
 01960 Technology licensing  
**TRAINING**  
 01741 Training personnel, maintenance  
 01742 Training personnel, pollution control  
 02210 Training personnel, safety & health  
 02457 Training systems, plant operators

## 9. INFORMATION TECHNOLOGY

### COMPUTERS FOR DESIGN & ENGINEERING

01750 Computer aided design & drafting systems  
 01751 Process simulation systems  
**COMPUTER HARDWARE**  
 01752 Calculators, electronic  
 01757 Computer security supplies  
 01758 Computer supplies  
 02489 Computers, explosion proof  
 01753 Computers, mainframe  
 01754 Computers, monitors & displays  
 01755 Computers, personal  
 02111 Computers, portable  
 01756 Computers, printers & plotters  
 02467 Data cable assemblies  
 02468 Data switches  
 01759 Digital computers, data processing  
 02414 Displays, LCD  
 02424 Enterprise resource planning  
 01760 Input & output equipment, data processing  
 02019 Manufacturing execution systems  
 01761 Simulators  
**COMPUTER SOFTWARE**  
 02425 Advanced process control  
 02454 Alarm Management  
 02450 Asset management  
 02020 Backup & disaster recovery  
 02274 Bar coding  
 02383 Batch control  
 02275 Calibration management  
 01762 Chemical equipment design  
 02021 Chemical plant design & maintenance  
 01763 Chemical process design  
 02112 Computational fluid dynamics

02427 Computer Maintenance  
 01764 Data acquisition & process control  
 02197 Data visualization  
 02384 Design of experiments  
 02382 Emergency response, real time  
 02385 Enterprise resource planning  
 02196 Environmental-compliance reporting  
 02415 Environmental, health & safety  
 02487 Failure analysis  
 02386 Hazardous-waste management  
 02276 Heat-exchange modeling  
 02113 Information management  
 02380 ISO compliance  
 02114 Laboratory information management  
 01961 Maintenance management  
 02022 Manufacturing execution systems  
 02198 Material Safety Data Sheet (MSDS) management  
 01963 Materials management  
 01765 Mathematics & statistics  
 02115 Mechanical integrity  
 02389 Neural-network simulation  
 02116 Physical properties  
 02524 PID loop tuning  
 02390 Plant optimization  
 02388 Pressure vessel design  
 02117 Process control  
 02199 Process optimization  
 02023 Process safety management  
 01766 Process simulation  
 02277 Production scheduling  
 02200 Project management  
 02118 Quality assurance or control  
 02119 Regulatory compliance  
 02024 Software development  
 01767 Software, other  
 02387 Supply chain management

## 10. E-COMMERCE

02431 Application service provider  
 02428 Customer relationship management  
 02429 E-Fulfillment  
 02430 E-Procurement  
 02432 Exchanges

## 11. ENVIRONMENTAL SERVICES & EQUIPMENT

### AIR POLLUTION CONTROL EQUIPMENT & SYSTEMS

02229 Adsorption systems, carbon  
 02230 Adsorption systems, other  
 02073 Afterburners  
 00887 Air pollution abatement systems  
 02476 Carbon dioxide recovery plants  
 00889 Chimneys, stacks & vents  
 02231 Combustors, catalytic  
 02232 Combustors, other  
 00890 Deodorizers  
 00891 Flares, stack & accessories  
 02480 Hydrogen sulfide removal systems  
 02162 NOx control systems  
 02074 Odor-control systems  
 02525 Particulate removal systems  
 02481 Sulfur Recovery  
 00892 Vapor recovery systems  
**ENVIRONMENTAL SERVICES**  
 02120 Accident investigation  
 01768 Air pollution control

01769 Asbestos removal services  
 02025 Bioremediation services  
 02396 Compliance-information management  
 01744 Decontamination, facility  
 01770 Environmental consulting  
 01771 Environmental insurance  
 01772 Environmental laboratories  
 02121 Environmental regulations, interpreting  
 01773 Full-service environmental firms  
 01774 Geotechnical services  
 02122 Groundwater remediation  
 02488 Groundwater services & equipment  
 01964 Hazard audits  
 01775 Hazardous waste services  
 01965 Indoor-air-quality services  
 01745 Land disposal facilities  
 01776 Recycling firms  
 02203 Remote monitoring  
 02278 Sludge handling  
 01908 Soil remediation  
 01777 Solid-waste management services  
 01746 Spill contingency, emergency response  
 01778 Spill control & emergency response  
 01779 Training services  
 02123 VOC control  
 02026 Waste minimization & recycling  
 01747 Waste testing & analysis  
 01748 Waste transportation  
 01749 Waste treatment facilities, other  
 01780 Water-pollution control services  
 02124 Water toxicity testing  
**WASTE HANDLING EQUIPMENT & SYSTEMS**  
 02391 Anaerobic treatment systems  
 01743 Containers, hazardous waste  
 01446 Disposal units, filter bags  
 01447 Disposal units, garbage  
 01448 Disposal units, hazardous waste  
 01449 Disposal units, liquid waste  
 01450 Disposal units, sewage  
 01451 Disposal units, solid waste  
 01452 Incinerators  
 01453 Incinerators, gas & liquid  
 02416 Incinerators, sludge  
 02408 Oxidizers, catalytic  
 02089 Oxidizers, molten salt  
 02174 Oxidizers, thermal  
 02090 Plasma torches  
 02246 Spill collectors, tank car  
 01454 Sumps, acid neutralizing  
 02008 Wet air oxidation systems  
**WATER POLLUTION CONTROL EQUIPMENT & SYSTEMS**  
 01455 Aerators, water pollution  
 02393 Baffles, floating  
 02417 Biological treatment  
 01456 Bio-oxidation units  
 01457 Chlorinators  
 01458 Coagulators  
 01459 Diffusers, water pollution control  
 01460 Digesters, sewage sludge  
 01461 Filters, bio-oxidation  
 01462 Flocculation equipment  
 01463 Grit collectors  
 01464 Liners, pond  
 01465 Oil skimmers  
 02176 Pads, absorbent  
 01466 Separators, oil-water  
 01467 Settlers, inclined plate  
 01468 Sewage treating units

01469 Sludge dewaterers  
02091 Sludge dryers  
02173 Spill prevention equipment  
02245 Strippers, air  
01470 Tanks, settling  
02394 Ultraviolet treatment systems  
01471 Waste-recovery treating systems  
02418 Wastewater neutralization systems

## 12. PROCESS CHEMICALS

02597 Acids, amino  
02279 Acids, fatty  
01909 Acids, inorganic  
02125 Acids, organic  
02280 Acids, other  
02285 Activated carbon  
02598 Active pharmaceutical ingredients  
01781 Adsorbents, for carbon dioxide  
02286 Adsorbents, for hydrocarbons  
02287 Adsorbents, for oil  
02288 Adsorbents, for PCBs  
02289 Adsorbents, nonpolar  
02290 Adsorbents, polar  
02291 Adsorbents, spill control  
02292 Adsorbents, zeolites  
02127 Alcohols, other  
02126 Alcohols, oxo  
02281 Alcohols, polyhydric  
02201 Alkalies  
02293 Antioxidants  
01782 Argon  
02128 Bacteria, bulk  
02294 Biocides, halogenated  
02295 Biocides, inorganic  
02296 Biocides, nitrogen-based  
02297 Biocides, organometallics  
02298 Biocides, organosulfur  
02300 Biocides, other  
02299 Biocides, phenolics  
02027 Carbon dioxide  
01804 Catalyst supports & systems  
01783 Catalysts, acid  
01784 Catalysts, alkylation  
02600 Catalysts, chiral  
01785 Catalysts, cracking  
01786 Catalysts, custom  
01787 Catalysts, dealkylation  
01788 Catalysts, dehydrogenation  
01789 Catalysts, dehydrogenation, spent  
01790 Catalysts, desulfurization  
02301 Catalysts, enzyme  
01791 Catalysts, hydrogenation  
01792 Catalysts, hydrotreating  
02202 Catalysts, isomerization

01793 Catalysts, organic synthesis  
01807 Catalysts, other  
01794 Catalysts, oxidation  
01795 Catalysts, palladium  
01796 Catalysts, platinum  
01797 Catalysts, polymerization  
01798 Catalysts, polyolefin production  
01799 Catalysts, precious metal  
02129 Catalysts, Raney nickel  
01800 Catalysts, reforming  
01801 Catalysts, rhenium  
01802 Catalysts, rhodium  
01803 Catalysts, ruthenium  
01805 Catalysts, urethane production  
01806 Catalysts, vinyl production  
02282 Catalysts, zeolite  
02302 Chelating agents  
02303 Coagulants, aluminum based  
02304 Coagulants, iron based  
02306 Coagulants, other inorganic  
02307 Coagulants, other organic  
02305 Coagulants, polymer-based  
01808 Defoamers  
01809 Defoamers, chemical  
02308 Degreasers  
02309 Demulsifiers  
01810 Desiccants  
02310 Dewatering agents  
01811 Dispersing agents, cement  
01812 Dispersing agents, ceramic  
01813 Dispersing agents, leather  
01818 Dispersing agents, other  
01814 Dispersing agents, paper  
01815 Dispersing agents, pigment  
01816 Dispersing agents, rubber  
01817 Dispersing agents, textile  
02311 Emulsifiers  
02312 Flame retardants  
02313 Flocculants  
01820 Helium  
01821 Hydrogen  
02028 Hydrogen peroxide  
02204 Inhibitors, corrosion  
01822 Nitrogen  
02314 Odor-control chemicals  
01910 Organic intermediates  
01823 Oxygen  
02029 Ozone  
02315 Pigments  
02316 Preservatives  
02283 Resins, alcohol-soluble  
02284 Resins, water-soluble  
01824 Solvents, adhesive  
02317 Solvents, alcohols  
01966 Solvents, biodegradable  
01825 Solvents, cellulose acetate  
01826 Solvents, chlorinated

01827 Solvents, coal tar  
01828 Solvents, cosmetic  
01829 Solvents, crude  
01830 Solvents, drug extracting  
01831 Solvents, dye  
01832 Solvents, electronic  
01833 Solvents, enamel  
02318 Solvents, esters  
02319 Solvents, ethers  
01834 Solvents, ethyl cellulose  
01835 Solvents, fats & oils  
01836 Solvents, fluorinated  
01837 Solvents, glycol ether  
01838 Solvents, high flash  
02320 Solvents, hydrocarbons  
01839 Solvents, ink  
01840 Solvents, insecticide  
02321 Solvents, ketones  
01841 Solvents, lacquer  
01842 Solvents, naphtha  
01843 Solvents, nitrocellulose  
01844 Solvents, nonflammable  
01845 Solvents, nontoxic  
01846 Solvents, odorless  
01857 Solvents, other  
01847 Solvents, oxygenated  
01848 Solvents, paint  
01849 Solvents, petroleum  
01850 Solvents, proprietary  
01851 Solvents, refrigerant  
01852 Solvents, resin  
01853 Solvents, rubber  
01854 Solvents, shellac  
01855 Solvents, terpenes  
01856 Solvents, varnish  
01911 Sorbents  
02322 Static eliminators  
01859 Surface active agents, amphoteric  
01860 Surface active agents, anionic  
01861 Surface active agents, cationic  
01862 Surface active agents, nonionic  
01858 Surface active agents, not further specified  
01863 Surface active agents, other  
02323 Thickeners, biochemical  
02324 Thickeners, castor oils  
02325 Thickeners, cellulose ethers  
02326 Thickeners, organoclays  
02328 Thickeners, other  
02327 Thickeners, thixotropes  
01864 Water treatment chemicals  
02205 Zeolites

## 13. ASSOCIATIONS

02426 Associations, chemical engineering  
02206 Associations, CPI-related