

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

ALTERNATIVE CLEANING PROCESS / PRODUCT VENDOR LIST

Revision: 5/95
Product / Process: N/A
Process Code: ID-01-00, ID-22-99
Substitute for: N/A
Waste Stream: N/A
Applicable EPA Hazardous Waste Codes: N/A
Applicable EPCRA Targeted Constituents: Chlorofluorocarbon solvents

Introduction: The excellent cleaning properties of chlorofluorocarbon (CFC) solvents have made them principal component cleaners in many manufacturing processes. Their high volatility is ideal for vapor degreasing processes. In addition, they have a high chemical stability, low toxicity, and high solvency. However, CFCs are being phased out of use as a result of their ozone-depleting nature and the international agreement known as the Montreal Protocol for Protection of Stratospheric Ozone. CFCs are considered high ozone-depleting substances (ODSs) (Class I ODSs) and have been banned from production by the EPA as of 1 January 1996. Fortunately, many ODS-free alternative cleaning processes and products are available.

Description: ODS-alternative cleaning processes are available in many different forms. Some of the common alternatives processes are:

- Aqueous cleaning processes
 - * Ultrasonic cleaning
 - * High pressure spray washing
- Semi-aqueous cleaning
- Carbon dioxide or other blasting operation
- No clean manufacturing processes

Likewise, a large number of products are on the market as ODS alternatives. Drop-in replacements are few, but some existing equipment can accommodate drop-in replacement products. Some classes of common alternative products are:

- Alkaline, chelating, emulsifying, and detergent products for aqueous cleaning processes
- Evaporative oils for no-clean processes
- Terpenes, alcohols, and aliphatic hydrocarbons for semi-aqueous cleaning processes
- Non-ODS chlorinated solvents
- Low ODS solvents - HCFCs
- Fluorocarbons
 - * Perfluorocarbons
 - _ Hydrofluorocarbons

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The vendor list shown below should, by no means, be considered comprehensive, exhaustive, or complete. It is, nevertheless, a broad-based national list of companies representative of the ODS alternative cleaning processes and products.

For more information on ODS-free cleaning processes and products see the following Pollution Prevention Opportunity Data Sheets:

- * ODS-Free Precision Cleaning Overview
- * ODS-Free Metal Cleaning Overview
- * ODS-Free Electronics Cleaning Overview
- * ODS-Free Aircraft Component Cleaning Overview
- * Ultrasonic Cleaning as a CFC Solvent Alternative
- * Carbon Dioxide Blasting Operations as Solvent Alternatives
- * Vapor Degreasing Alternatives
- * Blasting Operations as Solvent Alternatives Overview
- * High Pressure Spray Washing
- * Oxygen System Cleaning

Materials

Compatibility:

Every ODS alternative process or product must be evaluated before implementation for compatibility, not only with the components to be cleaned, but also for compatibility with the cleaning equipment. This is especially important when retrofitting existing cleaning equipment. Verify compatibility with the manufacturers of the original equipment, the cleaning equipment, and the cleaning product.

Safety and Health:

Safety and health considerations should be one of the primary considerations when selecting an ODS-alternative process or product. A safer, less toxic, biodegradable alternative should be chosen, provided it can meet the cleaning criteria of the intended application.

In any case, consult your local Industrial Health specialist, your local health and safety personnel, and the appropriate MSDSs prior to implementing any ODS-alternative cleaning process or product.

Benefits:

The primary benefit of ODS-alternative cleaning products and processes is to reduce the amount of ODSs entering the environment. Other benefits can include:

- 1) Lower cost operation
- 2) Less toxic cleaning products with no personal protective equipment required
- 3) Safer operations with no flammable, combustible, explosive, or asphyxiating constituents
- 4) Low or no global warming chemicals
- 5) Less hazardous waste generation

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6) Higher levels of cleanliness

Obviously, not all cleaning alternatives provide beneficial changes. Some detractions to alternative processes/products include the following:

- 1) Additional capital cost and higher operating costs
- 2) Utilities access may be required
- 3) Higher global warming chemicals
- 4) Substituting hazardous waste generation for wastewater generation
- 5) Components may require multiple steps compared to previous cleaning alternative
- 6) Cleaning time may increase
- 7) Contaminants may have new access into cleaning process
- 8) New systems often require more space than existing systems

Every alternative should be evaluated with these factors in consideration. No single process or product will work in every case. Careful selection and deliberate implementation are the keys to success with any new process or product.

Economic Analysis: N/A

Major Assumptions: N/A

Points of Contact: Ms. Nina Bonnelycke
Solvents and Aerosols Specialist
SNAP Program
Office of Stratospheric Ozone Protection
US EPA
(202) 233-9079

Ms. Reva Rubenstein
Toxicity Specialist
SNAP Program
Office of Stratospheric Ozone Protection
US EPA
(202) 233-9155

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Mr. John Sparks
Adhesives Specialist
SNAP Program
Office of Stratospheric Ozone Protection
US EPA
(202) 233-9731

The International Cooperative for Ozone Layer Protection, (202) 7 3 7 - 1419, is a non-profit organization made up of technical associations, corporations, and governmental agencies exchanging information on ozone layer protection, ozone-depleting substances (ODSs), and alternative technologies. ICOLP has developed seven different guidance manuals on ODS replacement products and processes, each including case studies and the extensive vendor list found below.

Approving Authority:	Approving authority is controlled locally and is not required by the major claimant.
Note:	This recommendation should be implemented only after engineering approval has been granted by cognizant authority.

Source(s): ICOLP Manual "Eliminating CFC-113 and Methyl Chloroform in Metal Cleaning."

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Vendor List:

AQUEOUS CLEANERS

3D, Inc.
2053 Plaza Drive
Benton Harbor, MI 49022-2211
Tel: (800) 272-4326
Fax: (616) 925-1922

Altos Engineering, Inc.
6009 N. 61 Ave
Glendale, AZ 85301
Tel: (602) 931-8434
Fax: (602) 937-6396

Batch and in-line cleaning equipment with non-chemical, thermal vacuum drying of rinse waters. Detergent formulations available with and without glycol ethers.

Ambassador Marketing
Route 1-Box 207
St. David, AZ 85630
Tel: (602) 720-4310
Fax: (602) 720-4068

Aqueous- and alcohol-based cleaners for low residue degreasing and dewaxing applications. Formulations are nonflammable and nonfuming.

Amtrex Technologies, Inc.
3361 Boulevard Griffith
Saint-Laurent QC
Canada H4T 1W5
Tel: (514) 739-0233
Fax: (514) 739-1581

Aqueous ultrasonic cleaning/degreasing systems for the metalworking, aerospace, automotive, military, and plating industries.

Ardrox
16961 Knott Avenue
La Miranda, CA 90638
Tel: (714) 739-2821
Fax: (714) 670-6480

Full range of aqueous-based formulations, as well as aliphatic hydrocarbon-based blends, terpene-based formulations, hydrocarbon-based solvent blends, and other cleaning alternatives and equipment.

Arm & Hammer
Church & Dwight Co., Inc.
Specialty Cleaning Group
469 North Harrison Street
P.O. Box CN5297
Princeton, NJ 08543-5297
Tel: (800) 824-0866

Armakleen E-2001 provides better than CFC cleaning in in-line and batch washers. Can be closed-loop treated. Designed for electronics cleaning.

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AT-CHEM

1225 W. Main St.
Wilmington, OH 45177
Tel: (513) 362-7511/(800) 443-2436
Fax: (513) 362-8038

AtoChem North America

3 Parkway
Philadelphia, PA 19102
Tel: (215) 587-7000
Fax: (215) 587-7199

Betz Metchem

508 Prudential Rd.
Horsham, PA 19044
Tel: (800) 775-7175

Blue Wave Ultrasonics

Div. of Alpheus Cleaning Technologies Corp.
960 S. Rolff St.
Davenport, IA 52802
Tel: (319) 322-0144/(800) 373-0144
Fax: (319) 322-7180

Ultrasonic cleaning equipment built for various applications specific to the customers' needs. Effective in cleaning different products and materials throughout the scope of fabricated metals, plastics, and ceramics. Also offer aqueous-based detergents that are environmentally safe.

Branson Ultrasonics Corp.

41 Eagle Rd.
Danbury, CT 06810
Tel: (203) 796-0400
Fax: (203) 796-0381

Ultrasonic cleaning equipment and integrated cleaning systems for metal, electronic, and precision cleaning requirements. Manual and full automated material handling/transport systems. Equipment for aqueous, aqueous, and solvent chemistry.

The Brulin Corporation

P.O. Box 270
2920 Dr. Andrew J. Brown Ave.
Indianapolis, IN 46206
Tel: (317) 923-3211
Fax: (317) 925-4596

Advanced technology aqueous detergent systems for spray, immersion, ultrasonic, and passive process cleaning of fabricated metal or plastic parts.

Buckeye International, Inc.

2700 Wagner Place
Maryland Heights, MO 63043
Tel: (800) 321-2583
Fax: (314) 298-2850

Aqueous cleaners made with new patented chemistry have successfully replaced MEK, 1,1,1-trichloroethane, acetone, and other hydrocarbon solvents in many different applications.

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Calgon Corp.
Chemical Technologies Group
P.O. Box 1346
Pittsburgh, PA 15230
Tel: (800) 955-0090
Fax: (412) 777-8927

Formulations include non-chelating, non-phosphate, readily biodegradable aqueous-based cleaners, non-chlorinated solvent cleaners and paint removing compounds, non-glycol-based solvent-enhanced general cleaners, neutral pH process cleaners, and industrial waste treatment polymers.

Chem-Tech International
1800 Diagonal Rd., Suite 600
Alexandria, VA 22314
Tel: (703) 549-1001
Fax: (703) 549-1003

Aqueous-based formulations containing detergents with and without glycol ethers for removing corrosion, grease, oil, wax, and resistant soils from metals and plastics; a hydrocarbon-based formulation with advanced cleaning and water displacement properties. Can be used on all metals, Teflon, plastic, and painted coatings. Also specifically designed cleaning equipment.

Chemtronics, Inc.
8125 Cobb Center Dr.
Kennesaw, GA 30144
Tel: (404) 424-4888
Fax: (404) 424-4267
Ultra-pure cleaners for electronics and metals.

Circle-Proscio, Inc.
2017 Yost Ave.
Bloomington, IN 47403
Tel: (812) 339-3653
Fax: (812) 331-2566

Aqueous, alkaline, chelant cleaners for ferrous and non-ferrous applications. Aqueous, acidic, neutral, and alkaline oil-rejecting cleaners with or without glycol ethers for ferrous and non-ferrous applications. Water miscible, semi-aqueous cleaners (electronics cleaning). Water emulsifiable cleaners containing aliphatic and terpene solvents. Evaporative oils for no clean applications.

Cleaning Systems, Inc.
3190 Coronet Way
Green Bay, WI 54304
Tel: (414) 337-2175/(800) 225-2231
Fax: (414) 337-9410

Aqueous cleaning solutions for all types of industrial degreasing and parts washing applications. Automated parts washing systems - both tub and pass-through, as well as oily water separators and reclaim systems.

Container Products Corp.
P.O. Box 3767
Wilmington, NC 28406
Tel: (919) 392-6100
Fax: (919) 392-6778

Systems incorporating a variety of aqueous cleaning techniques, which include filtered negative-pressure chambers, high-pressure chambers, and mobile cleaning systems.

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CRC Industries, inc.
885 Louis Dr.
Warminster, PA 18974
Tel: (215) 674-4300
Fax: (215) 674-2196

Formulations of water and detergents for general purpose cleaning. Products may be used full strength or diluted.

Crest Ultrasonics
Scotch Rd. - Mercer County Airport
P.O. Box 7266
Trenton, NJ 08268
Tel: (609) 883-4000/(800) 441-9675
Fax: (609) 883-6452

Precision cleaning equipment (primarily ultrasonic systems) from standard wash-rinse-dry cleaning consoles to large custom automated batch cleaning equipment. Ultrasonic generator is sweep frequency generator capable of cavitating both aqueous and semi-aqueous chemistries. Full line of aqueous-based cleaning chemistries for ultrasonic applications as well.

Dell-Chem of Arizona
7119 E. Shea Blvd., Suite 106-224
Scottsdale, AZ 85254
Tel: (602) 951-5812
Fax: (602) 948-4172

Aqueous and alcohol-based cleaners for low residue degreasing and dewaxing applications. Formulations are nonflammable and nonfuming.

Delta-Omega Technologies, Ltd.
P.O. Box 81518
Lafayette, LA 70598-1518
Tel: (318) 237-5091
Fax: (318) 237-5131

Fully aqueous, biodegradable, non-toxic cleaning solutions. Products leave no residue following proper cleaning and rinsing, no fumes or odors, are non-flammable, and contain no hazardous or reportable components.

Detrex Corp.
4000 Town Center, Suite 1100
Southfield, MI 48175
Tel: (313) 358-5800
Fax: (313) 358-5803

Aqueous micro-emulsion solution for gross metal cleaning and equipment for use with the cleaning solution. Alternative/vapor degreasing process, specialty equipment and solvents for metals and electronics cleaning, chlorinated and HCFC solvents, and aqueous and semi-aqueous solvents.

Diversy Corp.
DuBois Chemicals, Inc.
255 E. 5th St., #12
Cincinnati, OH 45202-4799
Tel: (513) 762-6863

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Dow U.S.A.

Midland, MI 48674

Tel: (800) 447-4369

Fax: (517) 832-1465

Multiple formulations composed of blends of anionic and nonionic surfactants with corrosion inhibitors and builders.

Ecolink

1481 Rock Mountain Blvd.

Stone Mountain, GA 30083

Tel: (404) 621-8240/(800) 886-8240

Fax: (404) 621-8245

Wide range of aqueous, semi-aqueous, and non-aqueous chemistries. Formulations include a variety of hydrocarbon, NMP, DBE, and terpene products, as well as non-ozone-depleting halogenated solvents. Manufacture a complete line of batch cleaning units for use with these solvents.

Electrolube Corporation USA

8200 Saint James Ave.

Elmhurst, NY 11373

Tel: (718) 565-5200

Fax: (718) 565-5715

Non-toxic, non-flammable, biodegradable, aqueous solvents suitable for in-line and batch equipment without modification. Also ideal for screening and pallet cleaning and precision metal degreasing (ferrous and non-ferrous).

Environmental Solvents Corp.

1840 Southside Blvd.

Jacksonville, FL 32216

Tel: (904) 724-1990

Fax: (904) 724-2508

Blend of coniferous (pine) terpenes, surfactants, and rust inhibitor. Alternative to conventional alkaline detergents. Removes hydrocarbon grease/oil where it floats to the surface and is skimmed off.

ETUS, Inc.

1511 Kastner Place

Sanford, FL 32771

Tel: (407) 321-7910

Fax: (407) 321-3098

Formulations made of hydrocarbons and blends of hydrocarbons and emulsifiers. Also offer aqueous-based formulations containing detergents with and without glycol ethers.

Fine Organics Corp.

205 Main St.

P.O. Box 687

Lodi, NJ 07644-0687

Tel: (201) 472-6800/(800) 526-7480

Fax: (201) 472-6810

Non-hazardous and biodegradable solvent and solvent-emulsion based alternatives. Products are applicable to the transportation, aviation, electronics, and coatings industries. Also offer water-based alternative products.

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Fremont Industries, Inc.

4400 Valley Industrial Park

Shakopee, MN 55379

Tel: (612) 445-4121

Fax: (612) 496-3027

Aqueous-based metal cleaning and non-metallic substrate cleaning formulations and application equipment. Includes spray, soak, and ultrasonic cleaners in rinse and no-rinse formulations.

Harvey Universal, Inc.

1805 West 208th St.

Torrance, CA 90501

Tel: (310) 328-9000

Fax: (310) 328-9100

Aqueous (non-VOC) and semi-aqueous (low-VOC) cleaners for parts baths, machinery, equipment, and general maintenance cleaning. Also offer a line of bioremediation products that can address cleanup of small hazardous waste spills such as diesel or fuel oil-soaked soil.

Hubbard-Hall, Inc.

P.O. Box 790

Waterbury, CT 06725

Tel: (203) 754-2171/(800) 648-3412

Fax: (203) 596-9544/(203) 756-9017

Hurricane Systems, Inc.

2080 Brooklyn Rd.

P.O. Box 867

Jackson, MI 49204

Tel: (517) 787-3481

Fax: (517) 787-2349

Wide range of "off-the-shelf," semi-custom, and custom parts cleaning systems using water-based cleaning compounds. Systems include belt, rotary, and overhead conveyors for continuous and batch processing; carousel, cabinet, and agitation tank washers; multi-stage wash, rinse, oxidation inhibit, and dry; oil removal and oil skimming devices; and electric, gas, and steam heat packages.

Hurri-Kleen Corp.

P.O. Box 29

Trussville, AL 35173

Tel: (205) 655-8808

Fax: (205) 655-5392

Aqueous-based biodegradable cleaners with and without glycol ethers.

Industrial Chemical Products

15378 Protector Ave.

City of Industry, CA 91745

Tel: (818) 961-9581/(800) 331-1197

Fax: (818) 333-6736

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Insitu Environmental Chemical Co.

8402 East Redwing Rd.

Scottsdale, AZ 85250-5740

Tel: (602) 948-9209

Fax: (602) 951-0715

Aqueous and alcohol-based cleaners for low residue degreasing and dewaxing applications. Formulations are non-flammable and non-fuming.

Johnson Wax (see S.C. Johnson & Son, Inc.)

JnJ Industries

195 E. Main St., Suite 303

Milford, MA 01757

Tel: (800) 554-9994

Fax: (508) 478-2221

Manufacturer of eight non-CFC formulations, including a supersaturated wipe solvent.

Lewis Corp.

102 Willenbrock Rd.

Oxford, CT 06478-1033

Tel: (203) 264-3100

Fax: (203) 264-3102

Manufacturer of industrial cleaning systems, specializing in aqueous-based chemistries. Both ultrasonic and non-ultrasonic washers available.

LPS Laboratories, Inc.

4647 Hugh Howell Rd.

Tucker, GA 30084

Tel: (800) 241-8334

Fax: (404) 493-9206

MacDermid, Inc.

245 Freight St.

Waterbury, CT 06702

Tel: (203) 575-5700

Fax: (203) 575-5630

Master Chemical Corp.

501 West Boundary

P.O. Box 10001

Perrysburg, OH 43552-3001

Tel: (419) 874-7902

Fax: (419) 874-0684

Aqueous cleaners formulated specifically for removal of coolants and cutting oils from machined metal parts. Formulations available to emulsify oils and/or reject straight and tramp oils. Centrifugation and membrane systems for wash water recycling also available.

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Modern Chemical Inc.

P.O. Box 368

Jacksonville, AR 72076

Tel: (501) 988-1311

Fax: (501) 682-7691

Non-toxic, non-corrosive, and non-flammable alkaline aqueous-based cleaner. Can be used in hand sprayers, dip tanks, ultrasonic, and spray wash cabinets.

Neozyme International, Inc.

3333 W. Pacific Coast Hwy. 4th Floor

Newport Beach, CA 92663

Tel: (714) 650-9131

Fax: (714) 642-3005

Degreasing formulations made of plant-derived enzymes and fully biodegradable emulsifiers in an aqueous solution. Unique applications in water treatment systems. Can be used in conjunction with ultrasound, microwave, and other types of mechanical cleaning devices.

Nobles Mfg. Inc.

645 East 7th St.

St. Paul, MN 55106

Tel: (612) 771-5581

Fax: (612) 771-7855

Aqueous formulations containing blends of detergents. Hydrocarbon blends and hydrocarbons. Centrifugal washing and drying equipment used extensively in the metal working and electronic industry.

North American Environmental Oil and Cleaning Supply Company

270A Route 46, Suite B1

Rockaway, NJ 07866

Tel: (201) 627-0722/(201) 627-1503

Fax: (201) 627-2982

Oakite Products, Inc.

50 Valley Rd.

Berkeley Heights, NJ 07922

Tel: (201) 464-6900

O.C.S. Systems

P.O. Box 370

429 Madrea St.

San Gabriel, CA 91778-0370

Tel: (818) 458-2471

Fax: (818) 458-2437

Offer aqueous-based formulation containing detergents with and without EGBE. Biodegradable, sewerable. Ultrasonics, spray wash systems, dishwashers, cabinet washers for cleaning, defluxing any and all parts. Complete closed loop systems, including D.I. water systems.

Parker-Amchem

32100 Stephenson Highway

Madison Heights, MI 48071

Tel: (313) 583-9300

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Permatex Industrial
705 North Mountain Rd.
Newington, CT 06111
Tel: (800) 828-2425
Fax: (800) 762-3340

Concentrated biodegradable water-based cleaners. Removes grease, grime, oils from parts and equipment. Use in dip tanks, parts washers, pressure sprayers, floor scrubbers; pine scented or fragrance-free formulas.

PPG Chemfil
1330 Piedmont
Troy, MI 48083
Tel: (313) 689-0720

PPG Industries, Inc.
Chemicals Group
1 PPG Place
Pittsburgh, PA 15272
Tel: (800) 243-6774
Fax: (412) 434-2401

Micro-emulsion cleaning system suitable for many metal cleaning applications. System is neutral, non-ionic, low VOC, non-combustible, and biodegradable. Also contains a rust inhibitor package and features long bath life and low waste generation.

Quaker and Chemical Corp.
Elm and Lee Streets
Conshohocken, PA 19428-0809
Tel: (215) 828-4250
Fax: (215) 828-1817

Qual-Tech Enterprises, Inc.
1485 Bayshore Blvd.
San Francisco, CA 94124
Tel: (415) 467-7887
Fax: (415) 467-7092

R. G. Hanson Co., Inc.
703 E. Lincoln
Bloomington, IL 61704
Tel: (309) 828-5070/(800) 392-0903
Fax: (309) 829-3294

Aqueous cleaning chemicals and equipment. New equipment using only steam to clean also available.

The Rission Group Inc.
13349 Michigan Ave.
Dearborn, MI 48126
Tel: (313) 581-2620
Fax: (313) 581-3758

Aqueous and non-aqueous formulations containing surfactants with and without glycol ethers. Hydrocarbons and blends of hydrocarbons with emulsifiers also available.

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Rochester Midland Corp.
333 Hollenbeck St.
Rochester, NY 14621
Tel: (716) 336-2200
Fax: (716) 467-4406

Formulations comprised of hydrocarbon and/or terpene solvents. Some also contain surfactants. Many contain alkaline builders and chelants, as well as glycol ethers. Some aqueous-based or water-compatible formulations exhibit good biodegradability. Many products allow for good oil/grease separation upon standing.

S.C. Johnson & Son, Inc.
US Commercial Markets
1525 Howe Street
Racine, WI 53403-5011
(414) 631-2777

S.C. Johnson Wax is the manufacturer of "Believe," in use at the Puget Sound Naval Shipyard in an aqueous dip tank.

Selig Chemical Industries
P.O. Box 43106
840 Selig Dr. SW
Atlanta, GA 30378
Tel: (404) 691-9220
Fax: (404) 699-7024

Formulations made of hydrocarbons and blends of hydrocarbons and emulsifiers. Also offer aqueous-based formulations containing detergents with and without glycol ethers, and some containing d-limonene.

Smart Sonic Precision Cleaning Systems
2373 Teller Rd., #107
Newbury Park, CA 91320
Tel: (805) 499-7440
Fax: (805) 375-5781

Automated ultrasonic and spray batch cleaners for precision cleaning of metal, plastic, and ceramic parts. Systems clean oils, particulate, and other contaminants. Optional waste evaporator.

SONICOR Instrument Corp.
100 Wartburg Ave.
Copiague, NY 11726
Tel: (516) 842-3344
Fax: (516) 842-3389

Ultrasonic cleaning equipment, automated aqueous cleaning systems. Environmentally safe alternatives to cleaning with hazardous solvents.

Storchem Inc.
3600 Billings Court, Suite 110
Burlington, Ontario
Canada L7N 3N6
Tel: (416) 639-9700
Fax: (416) 639-5244

Aqueous terpene formulations containing detergents and emulsifiers; semi-aqueous cleaners and degreasers based on terpene alcohols and hydrocarbons; terpene alcohol and hydrocarbon blends used as non-water soluble solvents.

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Sunshine Makers, Inc./Simple Green
15922 Pacific Coast Highway
Huntington Harbor, CA 92649
Tel: (310) 795-6000/(800) 228-0709
Fax: (310) 592-3034

Concentrated aqueous-based non-toxic, biodegradable, non-flammable cleaner/degreaser containing a blend of high-grade penetrants and surfactants which are activated by water.

Tech Spray Inc.
P.O. Box 949
Amarillo, TX 79105-0949
Tel: (806) 372-8523/(800) 858-4043
Fax: (806) 372-8750

Terpene Technologies Inc.
3400 Ridge Rd. W, Suite 293
Rochester, NY 14626
Tel: (716) 546-8455/(716) 777-0790
Fax: (716) 227-3834

Terpene alcohol and hydrocarbon blends used as non-water-soluble solvents, semi-aqueous cleaners, and degreasers based on terpene alcohols and hydrocarbons. Also offer aqueous-based terpene formulations containing detergents and emulsifiers.

Texo Corp.
2801 Highland Ave.
Cincinnati, OH 45212
Tel: (513) 731-3400
Fax: (513) 731-8113

Aqueous, semi-aqueous, and various solvent cleaners for replacement of vapor degreasing and handwiping with solvents. Applications of cleaners can be spray immersion, ultrasonic, or handwiping. Cleaners can be multimetal safe and contain corrosion inhibitors, if necessary.

Thierica
900 Clancy Ave.
Grand Rapids, MI 49503
Tel: (616) 458-1538
Fax: (616) 458-7120

New low-cost spray equipment manages extremely difficult cleaning jobs. Used with large and small parts containing baked grease and paint soils. Designed to be safe and environmentally secure with hydrocarbon and aqueous cleaning agents. Stainless steel construction.

Today and Beyond
P.O. Box 690
Ashland, OH 44805
Tel: (419) 945-2628

Specialty industrial cleaners formulated utilizing SPC to meet the needs and cleaning requirements for the aerospace, aircraft, automotive, electronics, marine, military, and nuclear industries. Existing vapor tanks can be used with minor modification in most cases.

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Ultrasound Fabrications, Inc.

1 Maple St.

Shelton, CT 06484

Tel: (203) 924-1624

Fax: (203) 924-1625

Ultrasonic parts washing systems with standard tank volumes of 5, 10, 20, and 30 gallons, as well as special sizes, if required. Systems provide for ultrasonic washing, spray, or different types of immersion rinsing and hot air drying to achieve clean, dry, spot-free parts.

Unitech Industrial, Inc.

P.O. Box 330

16 South Ave.

Wappingers Falls, NY 12590

Tel: (914) 297-0745/(800) 277-5522

Fax: (914) 297-2919

Closed-loop industrial cleaning systems. Spray washers, batch cleaning systems, vapor degreasing, and pretreatment systems available in new equipment and retrofits. Wastewater treatment and recycling, 100 percent oil removal from the cleaning process.

United Laboratories, Inc.

320 37th Ave.

St. Charles, IL 60174

Tel: (708) 773-0252

Fax: (708) 773-0595

Aqueous cleaners for use on most metals. Can be used from ambient temperatures to 200-, direct spray, spray under immersion, or in ultrasonic operations.

W. R. Grace and Co.

Metalworking Fluids Group

55 Hayden Ave.

Lexington, MA 02173

Tel: (617) 861-6600

Fax: (617) 861-9066

Wide range of aqueous cleaning formulations for metal, precision, and maintenance cleaning. Includes formulations that are phosphate-free. Suitable for agitation, soak, spray, ultrasonic, and hand wipe applications.

Zelman International Ltd.

P.O. Box 1112

Studio City, CA 91614

Tel: (818) 786-9488/(310) 576-6830 sales

Fax: (818) 787-8560/(310) 576-6832

Homogeneous blend of colloids, surfactants, hyper-wetting agents, and water in an industrial non-toxic, caustic cleaner designed to clean commercial and military aircraft, as well as metal surfaces such as aluminum and magnesium alloys, removing mill markings, mill inks, and shop soils such as dirt, coolants, lubricants, forming and cutting oils, and other common shop contaminants. Highly diluted, it is also suited in ultrasonic and precision cleaning and degreasing.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Zip-Chem Products

1860 Dobbin Dr.

San Jose, CA 95133

Tel: (408) 729-0291/(800) 648-2661

Fax: (408) 272-8062

Aqueous, semi-aqueous aliphatic hydrocarbon, terpene, and alcohol-based cleaners. Application oriented packaging like wipes, aerosols, specialty containers, and other delivery systems available.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

AQUEOUS CLEANING EQUIPMENT

ACCEL

1825 E. Plano Parkway
Plano, TX 75074-8129
Tel: (214) 424-3525
Fax: (214) 424-7526

System utilizing centrifugal cleaning to provide superior washing, effective rinsing, and drying of populated printed circuit boards and hybrid circuits. Includes automatic solvent recycling and rinse water purification with no required drain. Compatible with chlorocarbons, fluorocarbons, H₂O, and terpenes.

ACME-FAB

Div. of A-F Industries
11337 Williamson Rd.
Cincinnati, OH 45249
Tel: (513) 489-3060
Fax: (513) 489-6018

Batch and conveyORIZED spray cleaning systems, standard machines, or custom-designed equipment. Also offer automatic immersion systems incorporating rotation agitation and pump turbulence.

Advanced Curing Systems, Inc.

3701 S. Ashland Ave.
Chicago, IL 60609
Tel: (312) 247-3600

Advanced Deburring and Finishing

25 Marianne Dr.
P.O. Box 2491
York, PA 17405
Tel: (717) 767-4843/(800) 553-7060

American Metal Wash, Inc.

P.O. Box 265
360 Euclid Ave.
Cannonsburg, PA 15317
Tel: (412) 746-4203
Fax: (412) 746-5738

Full line of batch-type power spray cleaning equipment for manufacturing and maintenance equipment. Combines the effective capabilities of heat, biodegradable detergent with rust inhibitors, power sprays, and a high flow rate to flush dirt, oil, grease, chips, and other solid components away. Available in 1-, 2-, 3-, or 4-stage along with accessory equipment to clean the wash solution in process. Totally closed loop systems with automatic solution monitoring, water purification, and/or solution evaporation also available.

Amtrex Technologies Inc.

3361 Boulevard Griffith
Saint-Laurent QC
Canada H4T 1W5
Tel: (514) 739-0233
Fax: (514) 739-1581

Aqueous ultrasonic cleaning/degreasing systems for the metalworking, aerospace, automotive, military, and plating industries.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

ATCOR Corp.
150 Great Oaks Blvd.
San Jose, CA 95119-1367
Tel: (408) 629-6080/(800) 827-6080
Fax: (408) 629-9009

Baron-Blakeslee, Inc.
1500 West 16th St.
Long Beach, CA 90813
Tel: (800) 548-4422
Fax: (310) 491-1091
Full line of cleaning equipment for use with aqueous, semi-aqueous, HCFC, and chlorinated solvents. Closed loop system incorporating vacuum drying available (near zero emissions).

Barrett Centrifugals
Box 15059
Worcester, MA 01615-0059
Tel: (508) 755-4306/(800) 228-6442
Fax: (508) 753-4805
Centrifugal equipment for washing and drying small, irregularly shaped parts using detergent/water solution. With custom fixturing, can be adapted for larger, more complex parts or assemblies.

Better Engineering Mfg, Inc.
8361 Town Center Court
Baltimore, MD 21236
Tel: (410) 931-0000/(800) 229-3380

Blackstone Ultrasonics, Inc.
9 North Main St.
Jamestown, NY 14701
Tel: (716) 665-2620/(800) 766-6606
Fax: (716) 665-2480
Complete range of ultrasonic cleaning products, from stand-alone and bench-top heated tanks to wash/multiple rinse/dry console systems with optional material handling and automation. Also, fluxless ultrasonic solder pots for innng leads and electronics.

Bowden Industries, Inc.
1004 Oster Dr. NW
Huntsville, AL 35816
Tel: (800) 553-3637

Cincinnati Industrial Machinery
P.O. Box 62027
3280 Hageman St.
Cincinnati, OH 45241 (Street Address)/45262 (P.O. Box)
Tel: (513) 769-0700
Fax: (513) 769-0697
Custom designed machines for cleaning, surface preparation, and other processing of metal and non-metallic parts.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Creative Enterprizes
3560 Springwood, Suite 811
Ponca City, OK 74604
Tel: (405) 765-0879
Fax: (405) 765-0879

Specialize in low-cost conversion of existing facilities to safely use alternative cleaning agents. Design new or custom cleaning equipment and processes. Also design environmentally secure drying equipment and processes.

DURR Industries, Inc.
10301 Enterprises, Dr.
Davisburg, MI 48350
Tel: (313) 625-5400
Fax: (313) 625-5966

All aqueous and semi-aqueous systems recycle and reuse process water. Solvent systems reduce emissions by 99 percent over conventional degreasing systems.

Electronic Controls Design, Inc.
4287-A SE International Way
Milwaukee, OR 97006
Tel: (503) 659-6100/(800) 323-4548
Fax: (503) 659-4422

Electrovert
805 W. North Carrier Parkway
Grand Prairie, TX 75050
Tel: (214) 606-1900
Fax: (214) 606-1700

Full line of polypropylene and stainless steel in-line aqueous cleaning equipment. Also semi-aqueous in-line and aqueous and semi-aqueous batch equipment.

Environmental Recovery Resources, Inc.
P.O. Box 36
South Salem, NY 10590
Tel: (914) 533-6175
Fax: (914) 533-6275

Floating, dispersed, and dissolved hydrocarbon contaminants removed to surface water discharge limits using no coalescing plates, no centrifugal, no carbon absorption, no sorbent waste. Also offer systems and services to extend cleaning bath "life" for more cost-effective aqueous systems and wastewater processing, and waste-minimized settling pond and separator maintenance/remediation.

FMT, Inc. (Findlay Machine and Tool)
1950 Industrial Dr.
Findlay, OH 45840
Tel: (419) 422-0768/(800) 878-8011
Fax: (419) 422-0072

Custom engineered parts cleaning equipment, standard parts cleaning equipment, and pollution control equipment.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Finishing Equipment Inc.

3640 Kennebec Dr.

St. Paul, MN 55122

Tel: (612) 452-1860

Fax: (612) 452-9851

Aqueous, semi-aqueous, and solvent cleaning systems available. From manual systems to automated high-production cleaning lines, with ultrasonics available as needed. Specialize in automated enclosed vapor degreasers for efficient use of the non-ozone depleting chlorinated solvents.

Forward Technology Ind. Inc.

13500 County Rd. 6

Minneapolis, MN 55441

Tel: (612) 559-1785

George Koch Sons Inc.

10 South 11th Ave.

Evansville, IN 47744

Tel: (812) 426-9600

Fax: (812) 465-9274

Gray Mills

3705 N. Lincoln Ave.

Chicago, IL 60613

Tel: (312) 268-6825

The Hotsy Corp.

21 Inverness Way E.

Englewood, CO 80112-5796

Tel: (303) 792-5200

Jensen Fabricating Engineers, Inc.

P.O. Box 307

East Berlin, CT 06023

Tel: (203) 828-6516

J. M. Ney Co.

Neytech Division

Bloomfield, CT 06002

Tel: (203) 342-2281

Fax: (203) 242-5688

K.E.W. Cleaning Systems, Inc.

130B E. St. Charles Rd.

Carol Stream, IL 60188

Tel: (708) 690-3000

Kleer-Flo Company

15151 Technology Dr.

Eden Prairie, MN 55344

Tel: (612) 934-2555/(800) 328-7942

Fax: (612) 934-3909

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

NAPCO

Plymouth Industrial Park
Terryville, CT 06786
Tel: (203) 589-7800
Fax: (203) 589-7304

Proceco

7300 Tellier St.
Montreal, Quebec
Canada H1N 3T7
Tel: (514) 254-8494
Fax: (514) 254-8184/(514) 254-6922

Aqueous spray washers (turntable, belt conveyor, and immersion types). Also supply contaminated cleaning solutions recycling systems.

RAMCO Equipment Corp.

32 Montgomery St.
Hillside, NJ 07205
Tel: (908) 687-6700/(800) 553-3650

Ransohoff Co.

North 5th St. at Ford Boulevard
Hamilton, OH 45011
Tel: (513) 863-5813/(800) 248-WASH
Fax: (513) 863-8908

Standard and custom aqueous and semi-aqueous cleaning equipment for small through high production parts cleaning requirements, as well as very small to large part configurations and various part materials. Expertise in precision cleaning. Patented, mechanically agitated aqueous technology for high volume intricately shaped or machined parts as a direct replacement of solvent vapor degreasing and ultrasonic cleaning systems.

R. G. Hanson Co., Inc.

703 E. Lincoln
Bloomington, IL 61701
Tel: (309) 828-5070/(800) 392-0903
Fax: (309) 829-3294

Aqueous cleaning chemicals and equipment. New equipment using only steam to clean also available.

RotoJet

2819 San Fernando Blvd.
Burbank, CA 91504
Tel: (818) 841-1520
Fax: (818) 841-6448

S & C Co., Ltd.

North America Division
P.O. Box 902141
Palmdale, CA 93590-2141
Tel: (805) 267-0799
Fax: (805) 267-2324

Ultrasonic cleaning systems that can be used from heavy industrial cleaning to very delicate cleaning. Systems ranging from batch to in-line available.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Sonitech, Inc.

239 East Stephenson St.

Freeport, IL 61032

Tel: (815) 235-2400

Fax: (815) 232-2150

Ultrasonic cleaning equipment using aqueous or semi-aqueous chemistries for a wide range of applications. Complete systems include cleaning tanks, rinse tanks, dryers, and closed loop rinse water recirculation systems. System uses alcohol or other solvents with perfluorinated chemistry for rinsing and drying non-water contact applications.

Stoelting

502 Highway 67

Kiel, WI 53042

Tel: (414) 894-2293/(800) 558-5807

Fax: (414) 894-7029

Surface Dynamics Inc.

9185 General Court

Plymouth, MI 48170

Tel: (313) 459-0010

SURFTRAN (Bosch Group)

30250 Stephenson Highway

Madison Heights, MI 48071

Tel: (313) 547-3133

Swen Sonic Corp.

P.O. Box 4347

Davenport, IA 52808

Tel: (319) 322-0144

Fax: (319) 322-7180

Tally Cleaning Systems

Division of Metfab Engineering

332 John Dietsch Blvd.

Attleboro Falls, MA 02763

Tel: (508) 695-1007

Fax: (508) 695-6335

Single and multiple stage ultrasonic cleaning systems which utilize aqueous-based cleaning formulations. Complete systems available which include ultrasonic, wash, rinse, rust inhibit, hot air dry, particle filtration, oil separation, etc.

Tiyoda Mfg., U.S.A., Inc.

1613 Lockness Place

Torrance, CA 90501

Tel: (310) 539-5471

Fax: (310) 539-5881

Vacuum desiring ultrasonic batch cleaning system provides instantaneous cleaning solution penetration into small tubes and holes, and promotes superior cleaning. Vacuum drying system uses vacuum, hot air, ultra-pure steam heating, and far-infrared heater.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Unique Industries, Inc.
P.O. Box 417
Mohawk Ave. Extension
Derby, CT 06418
Tel: (203) 735-8751

Vibronics Corp.
Forbes Rd.
Newmarket Industrial Park
Newmarket, NH 03857
Tel: (603) 659-6550
Fax: (603) 659-7194

In line aqueous and semi-aqueous cleaning equipment with closed loop water treatment systems.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

SEMI-AQUEOUS CLEANERS

ALIPHATIC HYDROCARBON BASED

ARCO Chemical Co.
3801 West Chester Pike
Newtown Square, PA 19073-2387
Tel: (215) 359-2441
Fax: (215) 359-5753

DuPont Chemicals
Chestnut Run Plaza
P.O. Box 80711
Wilmington, DE 19880
Ms. Diane Fisher
Tel: (800) 441-9442
Tel: (302) 774-4107
Manufacturer Verterl XF, semi-aqueous cleaning product.

Petroferm Inc.
5415 First Coast Highway
Fernandina Beach, FL 32034
Tel: (904) 261-8286
Fax: (904) 261-6994

Broad line of formulations based on terpenes, ester, and aliphatic hydrocarbons, and blends of these organic solvents with surfactants. Products are used for cold (hand) cleaning and in combination with various cleaning equipment. Products can be removed by evaporation, water, alcohols, or nonflammable fluorinated solvents. Both products and rinse media can be recycled. Manufacturer of Axarel™ semi-aqueous cleaning product.

P-T Technologies, Inc.
108 4th Ave. South
Safety Harbor, FL 34695
Tel: (800) 441-7874
Fax: (813) 726-9544

Nonhalogenated hydrocarbon-based and water-based degreasers and cleaners. Specialty formulations for electronics, cable manufacturing, process cleaning, utility applications, and general cleanup.

TERPENE BASED

Biochem Systems
14452 W. 44th Ave.
Golden, CO 80403
Tel: (303) 277-9700/(800) 777-7870
Fax: (303) 277-9596

Cleaners/degreasers which are a blend of natural terpenes and non-ionic surfactants and are both water dilutable and non-water dilutable. Formulations will remove oils, greases, tars, cosmoline, and adhesive residues and are compatible with most pieces of equipment and ultrasonics. Also produce products for maintenance, cleaning, auto cleaning, graffiti removal, and printing press cleaning.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Envirosolutions, Inc.
335 Port Road West
Westport, CT 06880
Tel: (203) 454-5902
Fax: (203) 222-0190

Biodegradable, non-caustic, neutral pH cleaner which is used in a closed loop parts washing system. Several different formulations developed to suit a variety of cleaning needs. Customized parts washing equipment is matched to the cleaning chemicals to ensure optimum performance.

Glidco Organics
P.O. Box 389
Jacksonville, FL 32201
Tel: (800) 231-6728/(904) 768-5800
Fax: (904) 768-2200

Union Camp Corp.
Bush Boake Allen Division
P.O. Box 37617
Jacksonville, FL 32236
Tel: (904) 783-2180/(800) 874-9220
Fax: (904) 786-6495

Range of wood terpene-based alternative solvents for semi-aqueous and solvent only cleaning processes and maintenance cleaning applications. High solvency and high soil loading properties for removal of solder fluxes, heavy oils and greases, polishing compounds, carbonaceous deposit, etc., to the highest cleanliness standard.

ALCOHOL BASED

Conceptronic, Inc.
6 Post Rd.
Portsmouth, NH 03801
Tel: (603) 431-6262
Fax: (603) 431-3303

Semi-aqueous, spray-based, totally closed-loop modular batch cleaning systems utilizing non-flammable, naturally derived alcohol solvents in solution with water. Also have an ultrasonic batch cleaning system for metallic and non-metallic electronic surfaces and other difficult-to-clean non-electronic parts of unusual geometric shape.

Ken Seika Corp.
314 Willow Dr.
Little Silver, NJ 07739
Tel: (908) 741-4920
Fax: (908) 758-9531

Organic intermediates, specialty monomers-polymers, oligomers, etc. MMB for metal cleaning applications.

Kyzen Corp.
413 Harding Industrial Dr.
Nashville, TN 37211
Tel: (615) 831-0888/(800) 845-5524
Fax: (615) 831-0889

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

SEMI-AQUEOUS CLEANING EQUIPMENT

S&K Products International
80 Red Schoolhouse Rd. #102
Chestnut Ridge, NY 10977
Tel: (914) 425-6200
Fax: (914) 425-7607

Solvent wash followed by one or more aqueous rinses, including formulated surfactants; then to spot free, stain free, particulate free drying via isopropyl alcohol.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

HYDROCARBON-BASED SOLVENTS

Advance Research Technologies

312 South Vine St.
Park Ridge, IL 60068
Tel: (708) 696-9371
Fax: (708) 696-4984

Ultra-low residue, high purity terpene hydrocarbon cleaning agents. Used in vapor degreasing applications for metals cleaning, electronics cleaning, and precision cleaning.

BASF Corp.

100 Cherry Hill Rd.
Parsippany, NJ 07054

Chemical Solvents, Inc.

3751 Jennings Rd.
Cleveland, OH 44109
Tel: (216) 741-9310/(800) 362-0693
Fax: (216) 741-4080

Dynamold Solvents, Inc.

2905 Shamrock Ave.
Fort Worth, TX 76107
Tel: (817) 335-0862
Fax: (817) 877-5203

Non-flammable, low toxicity, low vapor pressure formulations of mixed esters and hydrocarbons. Used for cold wipe surface preparations, hand wipe operations prior to painting, flux removal, and cold immersion cleaning. Leaves a bondable surface with no residue after drying at room temperature. Non-corrosive.

Enviro Tech International

2201 Clemont Ave. #43
Alameda, CA 94501-1487
Tel: (510) 436-7603
Fax: (510) 436-7345

Non-flammable, drop-in replacement solvent for vapor degreasing of metals, electronics, and precision components. Leaves no residue. Requires no additional cleaning. For use in existing vapor degreasers. Also, cold or wipe cleaning applications of metals, high voltage circuits, oxygen system cleaning, and spot cleaning of electronics.

EXXON Chemical Co.

P.O. Box 3272
Houston, TX 77253-3272
Tel: (800) 526-0749
Fax: (713) 870-6661

Cleaners comprised of narrow boiling range, high flash point aliphatic hydrocarbons. Low olefin and aromatic content. Low residue, low corrosivity to metals, low odor, low toxicity. Require no water handling, recyclable by distillation. Effective against a wide range of waxes, oils, and greases found in metal and precision cleaning.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

International Specialty Products

1361 Alps Rd.

Wayne, NJ 07470

Tel: (201) 628-3000

Fax: (201) 628-4117

Specialty solvents comprised of N-methyl-2-pyrrolidone (NMP) and gamma-butyrolactone (BLO), as well as other proprietary ingredients. Products are biodegradable, water soluble, and recyclable.

Loctite Corporation

705 North Mountain Rd.

Newington, CT 06111

Tel: (800) 562-0560

Fax: (203) 280-3843

Hydrotreated heavy naphtha solvent with d-limonene. Effectively removes most greases, oils, lubrication fluids, metal cuttings, and fines without leaving a residue that has an adverse effect on adhesive bond strength. Cleaner is plastic compatible and non-corrosive to metal components.

LPS Laboratories, Inc.

4647 Hugh Howell Rd.

Tucker, GA 30084

Tel: (800) 241-8334

Fax: (404) 493-9206

Occidental Chemical Corp.

Technical Center

P.O. Box 344

Niagara Falls, NY 14302

Tel: (800) 733-1165

Fax: (716) 278-7297

Specially stabilized methylene chloride for a wide variety of applications. Formulations of halogenated toluenes and benzotrifluorides for cold cleaning of metals and electronics. Ethylene-based glycol ethers for use in many cleaning formulations.

QO Chemicals, inc.

P.O. Box 2500

2801 Kent Ave.

West Lafayette, IN 47906

Tel: (317) 497-6100

Storchem Inc.

3600 Billings Court, Suite 110

Burlington, Ontario

Canada L7N 3N6

Aqueous-based terpene formulations containing detergents and emulsifiers; semi-aqueous cleaners and degreasers based on terpene alcohols and hydrocarbons; terpene alcohol and hydrocarbon blends used as non-water soluble solvents.

Tech Spray Inc.

P.O. Box 949

Amarillo, TX 79105-0949

Tel: (806) 372-8523/(800) 858-4043

Fax: (806) 372-8750

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

NON-OZONE DEPLETING CHLORINATED SOLVENTS

Asahi Glass America, Inc.

450 Lexington Ave., Suite 1920

New York, NY 10017-3911

Tel: (212) 687-4600

Fax: (212) 687-4663

Methylene chloride for general metals, electronics, and precision cleaning.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

HCFCS

Allied-Signal
P.O. Box 1139R
Morristown, NJ 07960
Tel: (201) 455-4848
Fax: (201) 455-2745

LPS Laboratories, Inc.
4647 Hugh Howell Rd.
Tucker, GA 30084
Tel: (800) 241-8334
Fax: (404) 493-9206

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

OTHER CLEANING ALTERNATIVES AND EQUIPMENT

3M Company

Specialty Chemicals Division

Building 223-65-04

St. Paul, MN 55144

Tel: (612) 733-3735/(800) 833-5045

Perfluorocarbon-based fluids used as rinsing materials in specialty niche cleaning applications. These fluids are especially designed for cleaning processes for high-value parts when aqueous or semi-aqueous cleaning are not viable options.

Alpheus Cleaning Technologies Corp.

9119 Millikan Ave.

Rancho Cucamonga, CA 91730

Tel: (909) 944-0055

Fax: (909) 980-5696

Environmentally safe cleaning system that uses a high-velocity stream of solid carbon dioxide (dry ice) pellets to clean, strip, or decontaminate surfaces. Surfaces cleaned include aluminum, composites, steel, ceramics, and plastics. Substances removed include adhesives, epoxies, lubricants, process residues, old releases, and sealants.

CF TECHNOLOGIES, Inc.

1 Westinghouse Plaza, Suite 200

Hyde Park, MA 02136-2059

Tel: (617) 364-2500

Fax: (617) 364-2550

Supercritical fluid extraction cleaning process for removing organic solvent, oil, and lubricant residues. May also be effective for particulate removal when used in conjunction with agitation and/or ultrasonics.

Church & Dwight Co., Inc.

469 N. Harrison St.

Princeton, NJ 08543-5297

Tel: (609) 497-7230

Cold Jet, Inc.

455 Wards Corner Rd.

Loveland, OH 45140

Tel: (513) 831-3211

Fax: (513) 831-1209

Dry ice blasting process using small pellets of carbon dioxide (dry ice) as the blasting media. Pellets sublimate on contact, leaving no media for containment or disposal. Process currently being used in molded products, baking/food production, hazardous cleaning, automotive, aerospace (military and commercial), and contract cleaning industries.

Detrex Corporation

26000 Capitol Avenue

Redford, MI 48239-2499

(313) 937-0600

Manufactures AquaVert™, a non-toxic, electro-optical grade, biodegradable, and non-ozone depleting solvent.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Dow Corning Corp.

P.O. Box 994

Midland, MI 48686-0994

Tel: (517) 486-4000

Fax: (517) 496-4511

Volatile methyl siloxane (VMS) fluids containing no additives. Effective in removing cutting fluids, greases, body oils, and particles in cleaning of precision parts and metals. Easily recyclable by distillation and/or filtration.

Environmental Solvents Corp.

1840 Southside Blvd.

Jacksonville, FL 32216

Tel: (904) 724-1990

Fax: (904) 924-2508

Blend of coniferous (pine) terpenes, surfactants, and rust inhibitor. Alternative to conventional alkaline detergents. Removes hydrocarbon grease/oil, where it floats to the surface and is skimmed off.

FMT Inc. (Findlay Machine and Tool)

1950 Industrial Dr.

Findlay, OH 45840

Tel: (419) 422-0768/(800) 878-0811

Fax: (419) 422-0072

Custom engineered parts cleaning equipment, standard parts cleaning equipment, and pollution control equipment.

Freemont Industries, Inc.

4400 Valley Industrial Park

Shakopee, MN 55379

Tel: (612) 445-4121

Fax: (612) 496-3027

Aqueous-based metal cleaning and non-metallic substrate cleaning formulations and application equipment. Includes spray, soak, and ultrasonic cleaners in rinse and no-rinse applications.

GaSonics/IPC

2730 Junction Ave.

San Jose, CA 95134-1909

Tel: (408) 944-0212

Fax: (408) 473-9530

Low temperature plasma (RF discharge) equipment/process utilizes industrial grade gases such as oxygen, air, and nitrogen, or combinations thereof. Highly effective on all materials and widely used in electronic device cleaning, flux/solder removal, and medical device cleaning.

General Technoscience Inc.

631 Ruberta Ave.

Glendale, CA 91201

Tel: (818) 241-7500

Fax: (818) 241-7532

Energized supercritical fluids. Gross and precision cleaning machines which accept most standard baskets and loads to 250 lbs for cleaning a variety of products. Other products include dense fluid recycling streams and various racks/fixtures.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Hurricane Systems, Inc.

2080 Brooklyn Rd.

P.O. Box 867

Jackson, MI 49204

Tel: (517) 787-3481

Fax: (517) 787-2349

Wide range of "off-the-shelf," semi-custom, and custom parts cleaning systems using water-based cleaning compounds. Systems include belt, rotary, and overhead conveyors for continuous or batch processing; carousel, cabinet, and agitation tank washers; multi-stage wash, rinse, oxidation inhibit, and dry; oil removal and oil skimming devices; electric, gas, and steam heat packages.

INDCO Inc.

Railroad & Essex Sts.

Gloucester City, NJ 08030

(609) 456-6100

Degreaser is in use at the Puget Sound Naval Shipyard.

Inland Technology

2612 Pacific Highway East

Tacoma, WA 98424

(800) 552-3100

Degreaser is in use at the Puget Sound Naval Shipyard.

International Specialty products

1361 Alps Rd.

Wayne, NJ 07470

Tel: (201) 628-3000

Fax: (201) 628-4117

Specialty solvents comprised of N-methyl-2-pyrrolidone (NMP) and gamma-butyrolactone (BLO), as well as other proprietary ingredients. Products are biodegradable, water soluble, and recyclable.

Lewis Corp.

102 Willenbrock Rd.

Oxford, CT 06478-1033

Tel: (203) 264-3100

Fax: (203) 264-3102

Manufacturer of industrial cleaning systems, specializing in aqueous-based chemistries. Both ultrasonic and non-ultrasonic washers available.

Liquid Carbonic Supercritical

966 Postal Rd.

Allentown, PA 18103

Tel: (215) 266-9693

Fax: (215) 266-1482

Supercritical carbon dioxide cleaning technology and equipment. Closed loop or open loop recirculation systems effectively remove organic material from the component to be cleaned.

Mirachem Corporation

1045 South Edward Drive

Tempe, AZ 85281

(602) 966-3030

Degreaser is in use at the Puget Sound Naval Shipyard.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Scalewatcher Industrial
104 Clearfield Lane, Suite 204
Coatesville, PA 19320
Tel: (215) 384-7200
Fax: (215) 383-9951
Electronic descaling systems for hard water treatment.

Smart Sonic Precision Cleaning Systems
2372 Teller Rd., #107
Newbury Park, CA 91320
Tel: (805) 499-7440
Fax: (805) 375-5781
Automated ultrasonic and spray batch cleaners for precision cleaning of metal, plastic, and ceramic parts. Systems clean oils, particulate, and other contaminants. Optional waste evaporator.

Solidstrip Inc.
601 Interchange Blvd.
Newark, DE 19711
Tel: (302) 292-8340/(800) 677-4568
Fax: (302) 292-8321
Acrylic plastic blasting media for paint stripping.

Sonitech Inc.
239 East Stephenson St.
Freeport, IL 61032
Tel: (815) 235-2400
Fax: (815) 232-2150
Ultrasonic cleaning equipment using aqueous or semi-aqueous chemistries for a wide range of applications. Complete systems include cleaning tanks, rinse tanks, dryers, and closed-loop rinse water recirculation systems. System uses alcohol or other solvents with perfluorinated chemistry for rinsing and drying non-water contact applications.

Tally Cleaning Systems
Division of Letfab Engineering
332 John Dietsch Blvd.
Attleboro Falls, MA 02763
Tel: (508) 695-1007
Fax: (508) 695-6335
Single and multiple stage flat belt spraywashers, monorail spraywashers, and rotary drum spraywashers which utilize aqueous-based cleaning formulations. Complete custom systems available which include spraywash, sprayrinse rust inhibit, hot air dry, particle filtration, oil separation, etc.

Ultronix Inc.
104 Niantic Rd.
Barto, PA 19504
Tel: (800) 553-7881
Fax: (215) 845-3995
Retrofit existing equipment for HCFCs chlorinated solvents, perfluorinated chemicals, and hydrocarbon-based solvents. New equipment (manual or automated) for efficient use of non-aqueous vapor phase chemicals.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

POLLUTION CONTROL EQUIPMENT

American Metal Wash, Inc.

P.O. Box 265

360 Euclid Ave.

Cannonsburg, PA 15317

Tel: (412) 746-4203

Fax: (412) 746-5738

Line of evaporator, coalescer, and solution filtration systems designed to assist in cleaning up the cleaning solutions. Units can be provided as batch components to be added to current systems or totally automated to be incorporated with an existing system or with new cleaning equipment.

Ecology Systems, Inc.

P.O. Box 391

Bellingham, MA 02019

Tel: (508) 966-0396

Electrovert

805 W. North Carrier Parkway

Grand Prairie, TX 75050

Tel: (214) 606-1900

Fax: (214) 606-1700

Full line of polypropylene and stainless steel in-line aqueous cleaning equipment. Also semi-aqueous in-line and aqueous and semi-aqueous batch equipment.

Environmental Recovery Resources, Inc.

P.O. Box 36

South Salem, NY 10590

Tel: (914) 533-6175

Fax: (914) 533-6275

Floating, dispersed, and dissolved hydrocarbon contaminants removed to surface water discharge limits using no coalescing plates, no centrifugal, no carbon absorption, no sorbent waste. Also offer systems and services to extend cleaning bath "life" for more cost-effective aqueous systems and wastewater processing, and waste-minimized settling pond and separator maintenance/remediation.

FMT, Inc. (Findlay Machine and Tool)

1950 Industrial Dr.

Findlay, OH 45840

Tel: (419) 422-0768/(800) 878-8011

Fax: (419) 422-0072

Custom engineered parts cleaning equipment, standard parts cleaning equipment, and pollution control equipment.

Harvey Universal, Inc.

1805 West 208th St.

Torrance, CA 90501

Tel: (310) 328-9000

Fax: (310) 328-9100

Aqueous (non-VOC) and semi-aqueous (low-VOC) cleaners for parts baths, machinery, equipment, and general maintenance cleaning. Also offer a line of bioremediation products that can address cleanup of small hazardous waste spills such as diesel or fuel oil-soaked soil.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Hotsy Equipment Co.
67 Sprague St.
Boston, MA 02136
Tel: (800) 544-7790

Hoyt Corp.
Forgs Rd.
Westport, MA 02790-0217
Tel: (508) 636-8811
Fax: (508) 636-2088

Infinitem
P.O. Box 383
10100 Main St.
Clarence, NY 14031
Tel: (716) 759-6983
Fax: (716) 759-2050
Ultrafiltration systems for oil and water separation.

Lewis Corp.
102 Willenbrock Rd.
Oxford, CT 06478-1033
Tel: (203) 264-3100
Fax: (203) 264-3102
Manufacturer of industrial cleaning systems, specializing in aqueous-based chemistries. Both ultrasonic and non-ultrasonic washers available.

Membrex, Inc.
155 Route 46 West
Fairfield, NJ 07004
Tel: (201) 575-8388
Fax: (201) 575-7011
Membrane-based separation process to recycle, wash, and rinse waters from aqueous-based and organic cleaning solutions.

Met-Pro Corp.
Systems Division
160 Cassell Rd.
Harleysville, PA 19438
Tel: (215) 723-6751
Fax: (215) 723-6161
Activated carbon filter adsorption systems for control and recovery of cleaning solvent air emissions. Recovers solvent in higher quality and with less energy use than granular carbon. Systems can be regenerated with steam, air, or nitrogen.

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Midbrook Industries
1745 West Hamlin Rd.
Rochester Hills, MI 48309
Tel: (313) 852-2490/(800) 966-9274
Fax: (313) 852-5520

Chemical flocculation wastewater treatment systems for heavy metal emulsified oil, suspended solid removal to render industrial wastewater suitable for sewerage. Ultrafiltration wastewater treatment systems for pretreatment of oily wastewater for either reuse or disposal. Metal working fluid filtration systems to extend working life of fluids. Oil separation systems, including skimmers and coalescers, to separate tramp oils from metal working fluids.

NAPCO
Plymouth Industrial Park
Terryville, CT 06786
Tel: (203) 589-7800
Fax: (203) 589-7304

Proceco
7300 Tellier St.
Montreal, Quebec
Canada H1N 3T7
Tel: (514) 254-8494
Fax: (514) 254-8184/(514) 254-6922

Aqueous spray washers (turntable, belt conveyor, and immersion types). Also supply contaminated cleaning solutions recycling systems.

Prosys Corp.
187 Billarica Rd.
Chelmsford, MA 01824
Tel: (508) 250-4940
Fax: (508) 250-4977

Quantum Technologies
P.O. Box 223
Jones Mill Industrial Park
Jones Mill, AR 72105
Tel: (501) 844-4700
Fax: (501) 844-4711

SAMSCO, Inc.
18 Cote Ave.
Goffstown, NH 03045
Tel: (603) 668-7111

Separation Technologists, Inc.
100 Griffin Brook Park
Methuen, MA 01844
Tel: (508) 794-1170
Fax: (508) 794-0933

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

Westek
400 Rolyn Place
Arcadia, CA 91007
Tel: (818) 446-4444
Fax: (818) 446-7341

Zenon Environmental, Inc.
845 Harrington Court
Burlington, Ontario L7N 3P3
Canada
Tel: (416) 639-6320
Fax: (416) 639-1812

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

NO CLEAN ALTERNATIVES

PPG Chemfil
1330 Piedmont
Troy, MI 48083
Tel: (313) 689-0720

POLLUTION PREVENTION OPPORTUNITY DATA SHEET

MAINTENANCE CLEANING

Harvey Universal, Inc.

1805 West 208th St.

Torrance, CA 90501

Tel: (310) 328-9000

Fax: (310) 328-9100

Aqueous (non-VOC) and semi-aqueous (low-VOC) cleaners for parts baths, machinery, equipment, and general maintenance cleaning. Also offer a line of bioremediation products that can address cleanup of small hazardous waste spills such as diesel or fuel oil-soaked soil.

LPS Laboratories, Inc.

4647 Hugh Howell Rd.

Tucker, GA 30084

Tel: (800) 241-8334

Fax: (404) 493-9206

Micro Care Corp.

34 Ronzo Rd.

Bristol, CT 06010

Tel: (203) 585-7912

Fax: (203) 585-7378

Miller-Stephenson Chemical Co., Inc.

George Washington Highway

Danbury, CT 06810

Tel: (203) 743-4447

Fax: (203) 791-8702

Rite Off

1545 5th Industrial Ct.

Bay Shore, NY 11706

Tel: (516) 665-6868/(800) 645-5853

Fax: (516) 968-4218

