

H.x **Environmentally Preferable Solvent Products**

H.x.1 Environmentally Preferable Products Goals

- H.x.1.1 The District is seeking contractors to provide environmentally preferable and effective solvent products that support the District's environmentally preferable purchasing (EPP) contracting initiative.
- H.x.1.2 Environmentally preferable products are products and services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison considers the life cycle of the product from raw material acquisition, production, manufacturing, packaging, distribution, re-use, operation, maintenance and disposal.

H.x.2 Environmentally Preferable Solvent Products

- H.x.2.1 Solvents are fluids or a mixture of fluids capable of dissolving substances to produce compositions for industrial value.
- H.x.2.2 Solvent products subject to the requirements of this clause include, but are not limited to, the following classes:
 - (a) **Alcohols.** Alcohols are solvents that dissolve substances such as shellacs, vinyls, acrylics, epoxies and silicones.
 - (b) **Aliphatic Hydrocarbons.** Aliphatic hydrocarbons are solvents often found in coatings and insecticides. Commonly used as degreasers and solvents for acrylics and epoxies. Common aliphatics include mineral spirits, paint thinner, petroleum distillates, VM&P Naphtha, kerosene, gasoline and heptane (all of which are extremely flammable).
 - (c) **Aromatic Hydrocarbons.** Aromatic hydrocarbons are substances used in printing, fiberglass-reinforced products, glues and veneers. Common aromatics include toluene (toluol), xylene (xylol), coal-tar naphtha, styrene and benzene.
 - (d) **Chlorinated Hydrocarbons.** Chlorinated hydrocarbons are commonly used degreasers, dry cleaning agents, rubber solvents and paint strippers found in coatings, resins and tars. Common chemicals in this class include perchloroethylene, methylene chloride, carbon tetrachloride, methyl chloroform and trichloroethylene.
 - (e) **Glycols.** Glycols, which are water-soluble solvents used as lubricants, are found in cosmetics, coatings, resins and dyes. Glycol ethers include

butyl cellusolve (2-butoxyethanol), cellusolve (2-ethoxyethanol), methyl cellusolve (2-methoxyethanol), and cellusolve acetate (2-ethoxyethyl acetate). Most common glycol ethers are combustible.

- (f) **Esters.** Esters have differing chemical properties depending on their use including methyl formate, ethyl acetate, isopropyl acetate, methyl acetate, secamylacetate, and isoamyl acetate (banana oil).
- (g) **Ethers.** Ethers are ingredients in dyes, resins, waxes, cellulose nitrate and fuels, including ethyl ether, tetrahydrofuran, dioxane and isopropyl ether.
- (h) **Ketones.** Ketones are solvents for dyes, resin and waxes that are used to manufacture plastics, synthetic fibers, explosives, cosmetics and medicines. Some examples of ketones include acetone, methyl ethyl ketone, cyclohexanone and isophorone.
- (i) **Other Solvents.** Other types of solvents include freon, turpentine, dimethylformamide and carbon disulfide.

H.x.3 Solvent Environmental Requirements

The Contractor shall avoid the following hazards when using solvent products during the performance of this contract:

H.x.3.1 Health Hazards

- (a) **Bodily Contact** - The Contractor shall not use solvent products that irritate or harm the skin, eyes, nose and throat from direct contact with the solvents;
- (b) **Inhalation** – The Contractor shall not use solvent products that when inhaled causes headaches, nausea, vomiting and dizziness from contact with the solvents; and,
- (c) **Ingestion** – The Contractor shall not use solvent products that if ingested or exposed to for a period of time cause damage to the brain, liver, kidney, respiratory system and nervous systems.

H.x.3.2 Physical Hazards

- (a) **Flammable materials** are substances that will easily ignite, burn and serve as fuel for a fire. The flash point is the lowest temperature at which a liquid gives off enough vapors which, when mixed with air, can be easily ignited by a spark. The lower the flash point, the greater the risk of fire or explosion.

- (b) The Contractor shall not use solvent products that are a potential fire hazard or have a low flash point. A solvent is flammable and a serious fire hazard if its flash point is below 37.8C (100F).

H.x.4 Prohibited Solvents

The following solvent products are recognized by the National Institute for Occupational Safety and Health (NIOSH) as carcinogens, ozone-depleting solvents or as reproductive hazards in the workplace and shall not be used:

Benzene	Carbon tetrachloride
Trichloroethylene	1,1,2,2-tetrachloroethane
2-methoxyethanol	2-ethoxyethanol
Methyl chloride	Trichlorotrifluoroethane
Chlorinated Fluorocarbon Compounds	

H.x.5 Packaging Reduced/Recyclable

- H.x.5.1 If possible, the Contractor shall use products that are in reusable, refillable, or recyclable containers or are otherwise made from recycled content products.
- H.x.5.2 No products shall be delivered in aerosol cans.
- H.x.5.3 All products must be available in non-aerosol containers such as ready-to-use pump action sprays, air-charged refillable containers, or spray bottles.

H.x.6 Product Safety

- H.x.5.1 The Contractor shall be responsible for:
 - (a) Any damage to personnel, buildings, furniture or equipment directly traceable to their use or transportation of prohibited products.
 - (b) Any spills or leaks that occur during the use or transportation of their products.
 - (c) Evacuating and warning individuals that might be affected by any spills or leaks that occur when their products are being used or transported.
 - (d) Paying the clean up cost for any spills or leaks that occur while they are using or transporting their products.