NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Approved Alternative Solvents for Dry Cleaning

The health risks of perchloroethylene (perc) as a dry cleaning solvent has spurred the interest in alternative solvents to replace the use of perc. The Department has responded to many requests to approve such alternative solvents and to make complying with air pollution regulations as easy as possible. Recognizing the facility operator's desire to have the least burdensome requirements and while maintaining a focus on the protection of public health and the environment, the Department has approved several alternatives to using perc solvent. Toward that end, the Department is providing a list of these alternative dry cleaning solvents, the use of which would allow the dry cleaning facility to obtain a simple Air Facility Registration (a.k.a.; AFR, Registration) if certain criteria are met as noted below.

All stand-alone and mixed-use (co-located with residential or other commercial) dry cleaning facilities that use only approved alternative dry cleaning solvents may apply for a Registration if all dry cleaning machines are non-vented, closed-loop and equipped with a refrigerated condenser. These facilities will be issued a Registration unless emissions exceed the Volatile Organic Compound (VOC) RACT threshold (25 or 50 tons per year, depending on location). Facilities with multiple dry cleaning machines that use both perc and approved alternative solvents must meet other additional regulatory requirements (6NYCRR Part 232 and 40 CFR Part 63 Subpart M) to be granted a Registration. Facilities using unapproved alternative dry cleaning solvents will not be issued Registrations. Water-based cleaning machines (a.k.a., "wet cleaning") and dry cleaning machines that use only liquid carbon dioxide are exempt from air permitting requirements.

The following alternative dry cleaning solvents have been approved by the Department for use in non-vented, closed-loop dry cleaning machines that are equipped with a refrigerated condenser, conform to local fire codes, and meet the additional specifications required by the alternative solvent manufacturer:

- Green Earth® (SB-32): decamethylcyclopentasiloxane, CAS 541-02-6, by General Electric
- ExxonMobil DF-2000[1]: synthetic hydrocarbon, CAS 64742-48-9
- Chevron Philips EcoSolv®[1]: highly refined hydrocarbon, CAS 68551-17-7
- Rynex 3™: dipropylene glycol tert-butyl ether, CAS 132739-31-2
- Sasol (LPA-142)[1]: highly refined hydrocarbon, CAS 64742-47-8
- R.R. Streets Solvair™[2]: dipropylene glycol n-butyl ether (DPGnBE), CAS 29911-28-2
- SolvonK4™: dibutoxymethane, CAS 2568-90-3, by Kreussler
- Green Earth® GEC-5: decamethylcyclopentasiloxane, CAS 541-02-6, by Shin-Etsu
- DC-142[1]: aliphatic hydrocarbon solvent, CAS 64742-88-7, by Essential Solvents

NOTE: None of the above approved alternative solvents is a drop-in replacement for perc. Contact the alternative solvent manufacturer for the required dry cleaning machine specifications.

[1] Facilities with dry cleaning machines using hydrocarbon solvents (e.g., DF-2000, EcoSolv®, Sasol LPA-142 & DC-142) may be subject to the NSPS (40 CFR Part 60, Subpart JJJ) if the manufacturer's

rated capacity from all machines combined is equal to or greater than 84 pounds. Petroleum machines installed between 12/14/82 and 9/21/84 are exempt from the NSPS if the annual facility petroleum solvent usage is less than 4,700 gallons per year. The Department believes the test method procedures of Subpart JJJ, Section 60.624 were developed for petroleum transfer machine dryers and are not applicable to non-vented, closed-loop machines that are equipped with a refrigerated condenser.

[2] The Solvair™ dry-cleaning system uses both nPGnBE and carbon dioxide (exempt) as dry cleaning solvents and has been approved for Air Facility Registration.