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Category: 22 – Dry Cleaning

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

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SUBJECT: Equivalency With the Perchloroethylene
Dry Cleaning CTG RACT Recommendations

FROM: G. T. Helms, Chief
Control Programs Operations Branch (MD-15)

TO: Chief, Air Branch, Regions I-X

Several Regional Offices, State agencies, and industry representatives have asked OAQPS for assistance in determining what control devices are equivalent to carbon adsorbers for controlling emissions from the dryers of perchloroethylene dry cleaning systems. The 100 ppm maximum exhaust concentration limit suggested in the control technique guideline (CTG) is effective for determining if the carbon bed is approaching breakthrough but has little meaning in determining compliance for other types of control devices. Newer types of control devices are now available that may be equally effective in reducing emissions over the complete drying cycle but may not be able to meet a 100 ppm concentration limit.

A perchloroethylene recovery dryer operates through a closed loop system during the drying cycle. Perchloroethylene is recovered from the air stream during the drying cycle by a water condenser which is an integral part of recovery dryers. The dryer is vented to the atmosphere during the aeration (also called deodorizing or cool down) cycle and when the door is opened to remove or replace a load. One objective of the CTG was to reduce perchloroethylene emissions released to the atmosphere during the aeration cycle. Reasonably available control technology (RACT) for dryers was based on venting the exhaust through a carbon absorber before release to the atmosphere. Therefore, a dryer that does not recover perchloroethylene during the aeration cycle would be considered to be uncontrolled.

In review of data collected since issuing the CTG, OAQPS offers the following information for local and State agencies to use in making RACT determinations for control devices other than carbon adsorbers.

Refrigerated Condensers - A refrigerated condenser operates as a closed loop system during the dryer's aeration cycle. The vapor stream passes over the condenser coils and then recirculates back into the dryer. At the end of the cycle, the dryer door is opened, room air is drawn into the machine (required for operator safety), and vented directly to the atmosphere. The refrigerated condenser is bypassed when the door is open because perchloroethylene could be picked up from the frozen coils resulting in increased emissions at the roof vent.

It is recommended that dryers and dry to dry machines with recirculating refrigerated condensers be considered RACT if both of the following conditions are met:

1. The dryer/condenser system must be closed to the atmosphere at all times except when articles are being loaded or unloaded through the door of the machine.

2. The dryer/condenser system must not vent to the atmosphere until the air-vapor stream temperature on the outlet side of the refrigerated condenser is equal to or less than 45 degrees F.

The 45 degrees requirement represents a 90-95 percent control efficiency and should be achievable by any recovery dryer or dry to dry machine equipped with a properly functioning refrigerated condenser.

It is requested that this information be passed on to the State/local agencies for their use in implementing their perchloroethylene dry cleaning control program.

For additional information, please call the Technical Guidance Section, Tom Williams, at 629-5516.