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Standard Guidelines for Emission Control in Solvent Metal-Cleaning Systems¹

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1. Scope

1.1 These guidelines describe emission-control recommendations for two types of solvent metal-cleaning operations: vapor-degreasing and cold-cleaning.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values in parentheses are for information only.

2. Application

2.1 Emission controls recommended by these guidelines apply to all production and maintenance vapor-degreasing operations.

2.2 Guidelines for cold-cleaning operations apply to manufacturing as well as maintenance operations, including automotive, truck, and similar repair operations.

3. Terminology

3.1 Definitions:

3.1.1 *cold cleaning*—a metal-cleaning operation using a solvent or mixture of solvents other than water at a temperature below the initial boiling point of the system.

3.1.2 *vapor degreasing*—a metal-cleaning operation employing the condensation of solvent vapors for the purpose of removing soils.

3.2 Descriptions of Terms:

3.2.1 *freeboard (for cold-cleaning tanks)*—the distance from the top of the solvent or solvent drain to the top of the tank.

3.2.2 *freeboard (for vapor-degreaser tanks)*—the distance from the solvent vapor-air interface to the top of the basic degreaser tank.

4. Emission Control of Solvent Vapor-Degreasing Operations

4.1 The best emission-control technology should be applied to each vapor-degreasing operation both for economic and pollution abatement reasons. When waste solvent disposal is controlled as described in Section 6 and the vapor-degreasing operation and emission-control equipment is properly operated and maintained, the following measures represent the current state of the art in emission control:

4.1.1 The use of open-top degreasers designed with a freeboard-to-degreaser-width ratio of 0.75 or greater and an automatic cover will achieve emission reduction. The freeboard need not be greater than 48 in. (1220 mm) for

large vapor degreasers. Vapor-degreaser covers with less than 10 ft² (0.9 m²) of open-top area may be worker-operated; operation of degreaser covers larger than 10 ft² in area will be facilitated by and must be powered according to many State Implementation Plans (SIP's). All degreaser covers must be closed when the degreaser is not cleaning parts, again required by SIP's.

4.1.2 The installation of a freeboard chiller having the ability to remove a minimum 100 Btu/h·ft (8.8 W/m) of perimeter coil will achieve emission control, and may be combined with the techniques in 4.1.1.

4.1.3 The use of standard carbon-adsorption units or their equivalent, designed to ventilate open-top degreasers at a minimum rate of 50 ft³/min·ft² (15 m³/min·m²) of open-top area and with a time-weighted average vapor concentration less than 30 ppm in the exhaust duct of the carbon adsorber, will control emissions. Caution should be employed to avoid excessive ventilation because this can increase solvent losses.

4.1.4 The use of an enclosed conveyORIZED vapor degreaser will usually reduce labor and solvent emissions when substituted for two or more open-top degreasers to do an equivalent workload. The freeboard for an enclosed, conveyORIZED degreaser should be at least 0.5 times the width of the degreaser up to a maximum of 36 in. (0.9 m).² The vertical conveyor speed must not exceed 11 ft/min (3.4 m/min).² The hood must fully enclose the exposed vapor-air interface except for entrance and exit silhouettes just large enough to permit work and conveyor passage (clearances not exceeding 4 in. (100 mm) per side are permitted).² Enclosed conveyORIZED degreasers include the following types:

4.1.4.1 *Monorail Degreasers,*

4.1.4.2 *Cross-rod Degreasers,*

4.1.4.3 *Vibra Degreasers,*

4.1.4.4 *Elevator Degreasers,*

4.1.4.5 *Mesh-Belt Degreasers,*

4.1.4.6 *Ferris Wheel Degreasers,*

4.1.4.7 *Archimedes Screw Degreasers (Rotary Drum Degreaser),* and

4.1.4.8 Others that conform to the above general description and equivalently reduce emissions.

4.1.5 Alternatively, equivalent technology may be used to control emissions and satisfy state regulations.

5. Emission Control of Cold-Cleaning Operations

5.1 When waste solvent disposal is controlled as described in Section 6 and the cold-cleaning operation and emission-

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² These parameters are required to comply with some state implementation plan regulations, additional requirements are demanded by some SIP's.