

401 KAR 59:185. New solvent metal cleaning equipment.

RELATES TO: KRS 224.20-100, 224.20-110(1), 224.20-120, 42 U.S.C. 7408, 7410

STATUTORY AUTHORITY: KRS 224.10-100

NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-100 requires the Environmental and Public Protection Cabinet to promulgate administrative regulations for the prevention, abatement, and control of air pollution. 42 U.S.C. 7410 likewise requires the state to implement standards for national primary and secondary ambient air quality. This administrative regulation provides for the control of volatile organic compound emissions from new solvent metal cleaning equipment.

Section 1. Definitions.

- (1) "Affected facility" means cold cleaners, open top vapor degreasers, and conveyORIZED degreasers that utilize volatile organic compounds (VOCs) to remove soluble impurities from metal surfaces.
- (2) "Classification date" means June 29, 1979.
- (3) "Cold cleaner" means a batch-loaded degreaser whose solvent is kept below its boiling point.
- (4) "ConveyORIZED degreaser" means a degreaser that is continuously loaded by means of a conveyor system. Its solvent may be boiling or nonboiling.
- (5) "Freeboard height" means:
 - (a) For a cold cleaner, the distance from the liquid solvent level in the degreaser tank to the lip of the tank; or
 - (b) For a vapor degreaser, the distance from the solvent vapor level in the tank to the lip of the tank.
- (6) "Freeboard ratio" means the freeboard height divided by the width of the degreaser.
- (7) "Open top vapor degreaser" means a batch-loaded degreaser whose solvent is heated to its boiling point creating a solvent vapor zone.
- (8) "Refrigerated chiller" means a second set of freeboard condenser coils located slightly above the primary condenser coils that create a cold air blanket above the vapor zone.
- (9) "Solvent" means, in this administrative regulation, VOCs.

Section 2. Applicability.

- (1) This administrative regulation, except for Section 4(3) and (4) shall apply to:
 - (a) Each affected facility commenced on or after the classification date defined in Section 1 of this administrative regulation and located in a county or portion of a county designated as nonattainment for ozone in 401 KAR 51:010, for any classification except marginal; and
 - (b) Each affected facility commenced on or after the effective date of this administrative regulation that is part of a major source located in a county or portion of a county designated attainment or marginal nonattainment for ozone in 401 KAR 51:010.
- (2) Each affected facility commenced on or after the classification date defined in Section 1 of this administrative regulation but prior to the effective date of this administrative regulation that is part of a major source located in a county or portion of a county designated attainment or marginally nonattainment for ozone in 401 KAR 51:010 shall be exempt from this administrative regulation except that control devices and procedures required at the time it commenced shall continue to be operated and maintained.
- (3) This administrative regulation, including Section 4(3) and (4), shall apply to each affected facility commenced on or after the classification date defined in Section 1 of this administrative regulation and located in Boone, Campbell, or Kenton counties.

Section 3. Standard for VOCs. The owner or operator of an affected facility to which this administrative regulation applies shall install, maintain and operate the control equipment and observe at all times the operating requirements that apply to this type of degreaser as specified in Sections 4, 5, and 6 of this administrative regulation.

Section 4. Cold Cleaners.

(1) Control equipment.

- (a) The cleaner shall be equipped with a cover. If the solvent volatility is greater than fifteen (15) mm Hg measured at 100°F or if the solvent is agitated or heated, then the cover shall be designed so that it can be easily operated with one (1) hand.
- (b) The cleaner shall be equipped with a drainage facility so that solvent that drains off parts removed from the cleaner will return to the cleaner. If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100°F then the drainage facility shall be internal so that parts are enclosed under the cover while draining. The drainage facility may be external if the cabinet determines that an internal type cannot fit into the cleaning system.
- (c) A permanent, conspicuous label, summarizing the operating requirements specified in subsection (2) of this section shall be installed on or near the cleaner.
- (d) If used, the solvent spray shall be a fluid stream, not a fine, atomized or shower type spray, and at a pressure that does not cause excessive splashing.
- (e) If the solvent volatility is greater than thirty-two (32) mm Hg measured at 100°F or if the solvent is heated above 120°F, then one (1) of the following control devices shall be used:
 - 1. Freeboard height that gives a freeboard ratio greater than or equal to seven-tenths (0.7);
 - 2. Water cover, solvent shall be insoluble in and heavier than water; or
 - 3. Other systems of equivalent control, such as a refrigerated chiller or carbon adsorption.

(2) Operating requirements:

- (a) Waste solvent shall not be disposed of or transferred to another party so that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Waste solvent shall be stored only in covered containers.
- (b) The degreaser cover shall be closed if not handling parts in the cleaner.
- (c) Cleaned parts shall be drained for a minimum of fifteen (15) seconds, or until dripping ceases, whichever is longer.
- (d) The flushing of parts with a flexible hose or other flushing device shall be performed only within the freeboard area of the cold cleaner. The solvent flow shall be directed downward to avoid turbulence at the air-solvent interface so as to prevent the solvent from splashing outside of the cold cleaner.
- (e) Work area fans shall be positioned so that air is not directed across the opening of the cold cleaner.
- (f) The use of an air-agitated solvent bath is prohibited. A pump-agitated solvent bath shall be operated so as to produce no observable splashing of the solvent against either the tank wall or the parts that are being cleaned.
- (g) The cold cleaner shall be free of all liquid leaks. Auxiliary cleaning equipment such as pumps, water separators, steam traps, or distillation units shall not have any visible leaks, tears, or cracks.
- (h) Spills that occur during solvent transfer shall be cleaned immediately. Wipe rags, or other absorbent equipment and materials, used to clean the spill shall be stored in a covered container for disposal unless storage of these items is prohibited by fire protection authorities.

(3) Restrictions regarding sale and use of solvents. Sixty (60) days after January 1, 2005, the following activities are prohibited:

(a) The sale of any solvent with a vapor pressure that exceeds one (1.0) mm Hg (0.019 psi) measured at 20° C (68° F) in units greater than five (5) gallons for use in cold cleaners.

(b) The operation of a cold cleaner using a solvent with a vapor pressure that exceeds one (1.0) mm Hg (0.019 psi) measured at 20° C (68° F).

(4) Recordkeeping requirements.

(a) Any individual or entity subject to the provisions of Section 4(3)(a) of this administrative regulation shall maintain records for a minimum of five (5) years that include the following information for each solvent sale:

1. The name and address of the solvent purchaser;
2. The date of the sale;
3. The type of solvent;
4. The unit volume of the solvent;
5. The total volume of the solvent; and
6. The vapor pressure of the solvent measured in mm Hg at 20° C (68° F).

(b) Any individual or entity subject to the provisions of Section 4(3)(b) of this administrative regulation shall maintain records for a minimum of five (5) years that include the following information for each solvent purchase:

1. The name and address of the solvent supplier;
2. The date of the purchase;
3. The type of solvent; and
4. The vapor pressure of the solvent measured in mm Hg at 20° C (68° F).

Section 5. Open Top Vapor Degreasers.

(1) Control equipment:

(a) The degreaser shall be equipped with a cover that can be opened and closed easily without disturbing the vapor zone.

(b) The degreaser shall be equipped with the following safety switches:

1.
 - a. Condenser flow switch and thermostat to shut off sump heat if condenser coolant either is not circulating or is too warm;
 - b. Spray safety switch to shut off spray pump if the vapor level drops more than four (4) inches below the bottom condenser coil in order to prevent spraying above the vapor level; and
 - c. Vapor level control thermostat that shuts off sump heat if the vapor zone rises above the design level; or
2. Equivalent safety systems as approved on a case-by-case basis by the cabinet.

(c) The degreaser shall be equipped with at least one (1) of the following major control devices:

1. If the freeboard ratio is greater than or equal to 0.75, and if the degreaser opening is greater than ten (10) square feet, the cover shall be powered or mechanically assisted.
2. Refrigerated chiller.
3. Enclosed design so that the cover or door opens only if the dry part is actually entering or exiting the degreaser.
4. Carbon adsorption system, with ventilation greater than or equal to fifty (50) cfm/square foot of air-vapor interface area, if cover is open and exhausting less than twenty-five (25) ppm by volume solvent averaged over one (1) complete adsorption cycle.

5. Control system demonstrated to have control efficiency equivalent to or better than any of the above.
- (d) A permanent, conspicuous label, summarizing the operating procedures specified in subsection (2) of this section shall be installed on or near the degreaser.
- (2) Operating requirements:
 - (a) The cover shall be closed at all times unless processing work loads through the degreaser.
 - (b) Solvent carryout shall be minimized by the following measures:
 1. Parts shall be racked so that entrainment of solvent is avoided and full drainage is accomplished.
 2. Parts shall be moved in and out of the degreaser at a vertical speed less than eleven (11) ft./min.
 3. Work load in the vapor zone shall be degreased until condensation ceases.
 4. Any pools of solvent shall be tipped out on the cleaned parts before removal.
 5. Parts shall be allowed to dry within the degreaser above the vapor zone until visually dry (fifteen).
 - (c) Porous or absorbent materials such as cloth, leather, wood, or rope shall not be degreased.
 - (d) Work loads shall not occupy more than half of the degreaser's open top area.
 - (e) Spray above the vapor level shall not be allowed.
 - (f) Solvent leaks shall be repaired immediately or the degreaser shall be shut down.
 - (g) Waste solvent shall not be disposed of or transferred to another party so that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Waste solvent shall be stored only in closed containers.
 - (h) Exhaust ventilation shall not exceed sixty-five (65) cfm per square foot of degreaser area unless necessary to meet OSHA requirements or control device requirements. Ventilation fans shall not be used near the degreaser opening.
 - (i) Water shall not be visually detectable in the solvent exiting the water separator.

Section 6. Conveyorized Degreasers.

- (1) Control equipment:
 - (a) A conveyorized degreaser shall be enclosed except for work load entrances and exits.
 - (b) The degreaser shall be equipped with a drying tunnel or another means such as rotating baskets sufficient to prevent cleaned parts from carrying out solvent liquid or vapor.
 - (c) Minimized openings: entrances and exits shall silhouette work loads so that the average clearance between the largest parts and the edge of the degreaser opening is either less than four (4) inches or less than ten (10) percent of the width of the opening.
 - (d) Downtime covers: the degreaser shall be equipped with covers for closing off the entrance and exit during shutdown hours.
 - (e) If the degreaser has an air-solvent interface area or an air-vapor interface area equal to or greater than twenty (20) square feet, it shall be equipped with at least one (1) of the following major control devices:
 1. Refrigerated chiller;
 2. Carbon adsorption system with ventilation greater than or equal to fifty (50) cfm/square foot of air-vapor interface area, if downtime covers are open, and exhausting less than twenty-five (25) ppm of solvent by volume averaged over a complete adsorption cycle; or
 3. A system demonstrated to have a control efficiency equivalent to or better than either of the above.

(f) If the degreaser is a vapor type, it shall be equipped with the following safety switches:

1.

- a. A condenser flow switch and thermostat that will shut off the sump heat if coolant is either not circulating or is too warm;
- b. A spray safety switch that will shut off the spray pump or conveyor if the vapor level drops more than four (4) inches below the bottom condenser coil in order to prevent spraying above the vapor level; and
- c. Vapor level control thermostat that will shut off sump heat if the vapor level rises above the design level; or

2. Equivalent safety systems as approved on a case-by-case basis by the cabinet.

(g) A permanent, conspicuous label, summarizing the operating procedures specified in subsection (2) of this section shall be installed on or near the degreaser.

(2) Operating requirements:

(a) Exhaust ventilation shall not exceed sixty-five (65) cfm per square foot of degreaser opening unless necessary to meet OSHA requirements or control device requirements. Work place fans shall not be used near the degreaser opening.

(b) Solvent carryout shall be minimized by the following measures:

1. Parts shall be racked so that entrainment of solvent is avoided and full drainage is accomplished.

2. Vertical conveyor speed shall be maintained at less than eleven (11) ft/min.

(c) Waste solvent shall not be disposed of or transferred to another party so that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Waste solvent shall be stored only in closed containers.

(d) Solvent leaks shall be repaired immediately or the degreaser shut down.

(e) Water shall not be visually detectable in the solvent exiting the water separator.

(f) Downtime covers shall be placed over entrances and exits of the degreaser immediately after the conveyor and exhaust are shut down and removed just before they are started up.

Section 7. Compliance Timetable.

(1) Affected facilities that were subject to this administrative regulation as in effect on June 29, 1979, shall have achieved final compliance upon start-up.

(2) The owner or operator of an affected facility that, on or after the effective date of this administrative regulation, becomes subject to this administrative regulation for any reason other than construction, modification, or reconstruction shall be required to complete the following:

(a) A final control plan for achieving compliance with this administrative regulation shall be submitted no later than three (3) months after the date the affected facility becomes subject to this administrative regulation.

(b) The control system contract shall be awarded no later than five (5) months after the date the affected facility becomes subject to this administrative regulation.

(c) On-site construction or installation of emission control equipment shall be initiated no later than seven (7) months after the date the affected facility becomes subject to this administrative regulation.

(d) On-site construction or installation of emission control equipment shall be completed no later than eleven (11) months after the date the affected facility becomes subject to this administrative regulation.

(e) Final compliance shall be achieved no later than twelve (12) months after the date the affected facility becomes subject to this administrative regulation.

(f) If an affected facility becomes subject to this administrative regulation because it is located in a county previously designated nonattainment or redesignated in 401 KAR

51:010 after June 15, 2004, final compliance may be extended to December 15, 2007, and the schedule in paragraphs (a) through (d) of this subsection adjusted by the cabinet.

Section 8. Exemptions. Any cold cleaners, other than cold cleaners subject to Section 4(3) or (4) of this administrative regulation, shall be exempt from Section 4 of this administrative regulation if the following criteria are met:

- (1) The cold cleaner shall have a remote solvent reservoir;
- (2) The solvent used in the cold cleaner shall not have a vapor pressure that exceeds thirty-three (33) mm Hg measured at 100°F or be heated above 120°F;
- (3) The sink-like work area shall have an open drain area less than 100 sq. cm.; and
- (4) Evidence shall be provided that waste solvent shall be stored or properly disposed of with minimal loss due to evaporation.

(5 Ky.R. 455; 6 Ky.R. 18; eff. 6-29-1979; 7 Ky.R. 328; eff. 1-7-1981; 18 Ky.R. 2616; 2936; 3340; eff. 6-24-1992; 31 Ky.R. 403; 1142; eff. 1-4-2005; Crt eff. 11-21-2018; TAm eff. 2-8-2019.)