

# The Smell of Success!

## Decreasing air pollution in the Kansas City area



### Requirements for owners or operators of cold solvent cleaning systems

Users of cold cleaners must minimize evaporation of solvent by the following methods where applicable:

- Use a vapor-tight cover or enclosed solvent reservoir that will limit escape of solvent vapors when parts are not being processed.
- Unit must be kept closed when not in use.
- If the solvent is agitated or heated, or its vapor pressure is greater than 15.5 mm of Hg at 100°F, the solvent cover must be designed for one-handed operation to reduce vapor losses.
- If the cover of the cleaner is greater than 10 square feet, a mechanical or power-assisted system must be used to aid in operation of the cover.
- All cold solvent cleaners must be equipped with an internal or external drainage system for parts to drain under an enclosed cover; an external drainage system that drains to an enclosed solvent reservoir can be used if the solvent vapor pressure is less than 31 mm Hg at 100°F.
- All cleaned parts must be allowed to drain for at least 15 seconds or until dripping ceases.
- If the solvent's vapor pressure is greater than 31 mm of Hg at 100°F, or if the solvent is heated above 120°F, one of the following methods must be used to control vapor losses of solvent cleaner:
  - Maintain a freeboard ratio greater than or equal to 0.75 (freeboard ratio is figured by measuring the height from the solvent surface to the top of the machine and then dividing it by the inside length, width, or diameter of the machine).
  - Use a water-layer cover for solvents that are insoluble in, and heavier than, water.
  - Use a control device such as a refrigerated chiller system or carbon adsorption filter with a VOC emissions reduction efficiency of at least 65% or greater; equipment must be approved by the Wyandotte County Air Program for businesses in Wyandotte County, or by KDHE for those businesses in Johnson County.

### Introduction

The Kansas Department of Health and Environment (KDHE) has adopted a regulation to help the Kansas City area meet national air quality standards designed to limit volatile organic compound (VOC) air pollutants. VOC air pollution comes from many different sources: manufacturing facilities; power plants; print shops; automotive repair shops; other industrial cleaning operations; mobile sources such as vehicles and planes; and everyday products including gasoline, solvents, glues, and paints.

Whatever the source, air pollutants that adversely affect human health and the environment are regulated on a national basis by the U.S. Environmental Protection Agency (EPA). If levels of air pollutants are higher than what is considered acceptable in a certain geographical location, the area may be designated as a “non-attainment” area, and state and local officials must come up with a plan to reduce pollutants to acceptable levels. Johnson and Wyandotte counties, currently designated as a maintenance area for ozone, must continue to work to reduce VOC pollution, which can contribute to ground-level ozone formation.

In response to higher than acceptable levels of ozone in the Kansas City metro area, KDHE adopted Kansas Air Regulation 28-19-714, which limits the vapor pressure of solvents that can be sold and/or used for cleaning or degreasing operations in the Kansas City area, and affects all businesses that use or sell cold cleaning solvent. All solvents used or sold for cold cleaning must have a maximum vapor pressure of 1 mm Hg at 68°F, and solvents used solely for carburetor cleaning a vapor pressure of 5 mm Hg or less (at 68°F). To view the actual regulation, please visit KDHE's Bureau of Air and Radiation website, at [www.kdheks.gov/bar/download/KS\\_AQ\\_REGS.pdf](http://www.kdheks.gov/bar/download/KS_AQ_REGS.pdf).

### Requirements for owners or operators of cold solvent cleaning systems *(cont)*

- The unit must have a permanent, conspicuous label attached to it so that the operator can easily read the unit's operational instructions.
- Waste solvent from the unit must be transferred and stored in closed, properly labeled containers that prevent evaporation of waste solvent into the air.
- The cleaning unit may only be equipped with a solid-fluid stream sprayer with no more than 10 pounds per square inch (psi); atomizing or shower-type sprayers cannot be used.

### Practices exempted from requirements for cold solvent cleaning systems

The following cases do not have to comply with this regulation:

- janitorial and institutional cleaning
- electrical component cleaning
- aqueous cleaning systems
- medical device cleaning
- paint spray gun and nozzle cleaning if the cold solvent container unit does not exceed 16 gallons in size and is kept tightly closed at all times
- cold solvent cleaning units that have one square foot or less of liquid surface area, or with a maximum capacity of one gallon of solvent or less
- cold solvent cleaning operations that meet the following emission control requirements:
  - Kansas Administrative Regulations (KAR) 28-19-63 for automobile and light-duty truck surface coating
  - KAR 28-19-71 for printing operations
  - KAR 28-19-73 for surface coating of miscellaneous metal parts and products and metal furniture
  - KAR 28-19-76 for lithography printing operations
- cleaning operations already regulated under any federal national emission standard for hazardous air pollutants (KAR 28-19-735 and KAR 28-19-750)
- air-tight or air-less cleaning systems, if all of the following requirements are met:
  - equipment is operated in accordance with the manufacturer's instructions and specifications, and a door or other pressure-sealing device is in place during all cleaning and drying cycles
  - waste solvents are properly stored in sealed, labeled containers in accordance with hazardous waste regulations
  - pressure-relief devices do not allow solvent discharge outside the system
  - spills that occur during solvent transfers are cleaned up immediately and managed according to hazardous waste regulations
  - a differential pressure gauge is installed and used to verify sealed-chamber pressure

### Requirements for owners or operators of open-top vapor degreasing systems

- The vapor degreaser shall be equipped with a cover that can be opened and closed easily without disturbing the vapor zone.
- The following safety switches and devices shall be provided:
  - a condenser coolant flow and high-level thermostat switch that shuts off the pump heat if the condenser coolant either is not circulating or is too warm
  - a spray safety switch that shuts off the spray pump if the vapor level drops more than four inches
  - a solvent-level control
  - a sump thermostat
  - a vapor-level-control thermostat that shuts off the pump heat when the vapor level rises above the recommended level
- One of the following devices or systems shall be provided to control VOC emissions:
  - a powered cover, if the freeboard ratio is greater than or equal to 0.75 and the degreaser opening is greater than 10.75 square feet
  - a refrigerated chiller
  - an enclosed design in which the cover or door opens only when the dry part is entering or exiting the degreaser
  - a carbon-adsorption system, providing ventilation greater than or equal to 50 cubic feet per minute per square foot of degreaser opening during operation and exhausting less than 25 parts per million by volume of solvent when averaged over one complete adsorption cycle
  - a vapor-processing system, demonstrated to the satisfaction of KDHE or Wyandotte County Air Program to have an overall emissions-control reduction efficiency of 65 % or greater

### Requirements for owners or operators of open-top vapor degreasing systems *(cont)*

- A permanent, conspicuous label summarizing the operating procedures described in the remainder of this section shall be attached to the cleaner near the operator's position.
- The cover shall be kept closed at all times except when processing workloads through the degreaser.
- Porous or absorbent materials, including cloth, leather, wood, and rope, shall not be degreased.
- More than half of the degreaser's open-top area shall not be occupied with workload.
- Solvent carryout shall be minimized by all of the following practices:
  - racking parts to allow complete drainage
  - moving parts in and out of the degreaser at less than 11 feet per minute
  - holding the parts in the vapor zone at least 30 seconds or until condensation ceases
  - draining any pools of solvent on the cleaned parts before removal from the vapor zone
  - allowing parts to dry within the degreaser for at least 15 seconds or until visually dry
- The degreaser shall not be loaded to the point at which the solvent level would drop more than four inches when the workload is removed from the vapor zone.
- Spray shall always be below the vapor level.
- Solvent leaks shall be repaired immediately, or the degreaser shall be shut down until repairs are made.
- Waste solvent shall be stored in covered containers, and waste solvent shall not be disposed of or transferred to another party in a manner allowing the waste solvent to evaporate into the atmosphere.
- The cleaner shall not be operated so as to allow water to be visually detectable in solvent exiting the water separator.
- Ventilation fans shall not be used near the degreaser opening, nor shall exhaust ventilation exceed 65 cubic feet per minute per square foot of degreaser open area, unless necessary to meet OSHA regulations.

### Requirements for owners or operators of conveyORIZED degreasing systems

- Workplace fans shall not be used near the degreaser opening, nor shall exhaust ventilation exceed 65 cubic feet per minute per square foot of degreaser opening, unless the owner or operator documents that this ventilation is necessary to meet OSHA regulations.
- Unless the degreaser has less than 21.75 square feet of air-vapor interface, one of the following control devices or systems shall be installed:
  - a refrigerated chiller
  - a carbon-adsorption system, providing ventilation greater than or equal to 50 cubic feet per minute per square foot of air-vapor area during operation of degreaser and exhausting less than 25 parts per million of solvent by volume when averaged over a complete adsorption cycle
  - a vapor-processing system demonstrated to have an overall VOC emissions-control reduction efficiency demonstrated to the satisfaction of the department to be 65 percent or greater
- The cleaner shall be equipped with equipment, including a drying tunnel or a rotating or tumbling basket, that prevents cleaned parts from carrying out solvent liquid or vapor.
- The following safety switches and devices shall be provided:
  - a condenser coolant-flow and high-level thermostat switch that shuts off the pump heat if the condenser coolant either is not circulating or is above the recommended posted temperature
  - a spray safety switch that shuts off the spray pump or the conveyor if the vapor level drops more than four inches
  - a vapor-level-control thermostat that shuts off the pump heat when the vapor level rises above the recommended level
  - solvent-level control
  - sump thermostat
- Openings during operation shall be minimized so that the average clearance between the parts and the edge of the degreaser opening is less than four inches or less than 10 percent of the width of the opening.
- Covers for closing off the entrance and exit during non-degreasing operations shall be installed and operated.

## Requirements for owners or operators of conveyORIZED degreasing systems (cont)

- Carryout emissions shall be minimized by the following:
  - racking parts for best drainage
  - maintaining the conveyor speed at less than 11 feet per minute.
- Waste solvent shall be stored in covered containers, and waste solvent shall not be disposed of or transferred to another party in a manner allowing the waste solvent to evaporate into the atmosphere.
- Solvent leaks shall be repaired immediately, or the degreaser shall be shut down until these repairs are made.
- The cleaner shall not be operated so as to allow water to be visually detectable in solvent leaving the water separator.
- Covers shall be installed over entrances and exits of conveyORIZED degreasers, and the covers shall be closed when degreasing is not being conducted.

## Recordkeeping requirements for owners and users of solvent cleaning and vapor degreasers

In addition to specific equipment requirements and work practices that support this regulation, shops must also prepare the following records for affected degreaser/cold cleaning units:

- type and amount of solvents used per month in each affected degreaser
- all maintenance records to the degreaser unit and associated emission-control equipment
- names and addresses of solvent suppliers used
- date of each solvent purchase for affected degreaser units
- quantity and vapor pressure of each affected solvent purchased, in units of mm Hg at 68°F
- further recordkeeping by the operator or owner, if necessary, to adequately demonstrate compliance with this regulation

If you have a solvent cleaning operation at your shop in Johnson or Wyandotte counties, and you need more information, please call the Kansas SBEAP hotline at 800-578-8898 or e-mail SBEAP at [sbeap@ksu.edu](mailto:sbeap@ksu.edu).

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