RULE 413 ORGANIC SOLVENT DEGREASING OPERATIONS (Adopted 1/16/2001)

A. Applicability

Requirements of this Rule shall apply to Organic Solvent Degreasing Operations.

A.1 Exemptions

Provisions of this Rule do not apply to:

A.1.a Wipe Cleaning.

A.1.b Except Subsection B.1.c.2, degreasing equipment using Low Volatility Solvent.

A.1.c Unheated non-conveyorized cleaning equipment as specified in Section E.9.b of Rule 202.

A.1.d Degreasing equipment using halogenated solvents. Such equipment shall comply with the National Emission Standards For Hazardous Air Pollutants (Subpart T of Part 63).

B. Requirements

B.1 Cold Cleaner Requirements: Any person who operates a Cold Cleaner shall conform to the following requirements:

B.1.a General Operating Requirements:

B.1.a.1 Degreaser equipment and any emission control equipment shall be operated and maintained in proper working order;

B.1.a.2 Organic Solvent leaks shall be corrected immediately, or Degreaser shut down and drained.

B.1.a.3 No device designed to cover Organic Solvent shall be opened or removed unless processing work in Degreaser or performing maintenance on the Degreaser.

B.1.a.4 If Organic Solvent flow is utilized, only continuous fluid stream (not fine, atomized, or shower type spray) shall be used at a pressure which does not cause liquid Organic solvent to splash outside of the Organic

Solvent container.

B.1.a.5 No porous or absorbent materials such as cloth, leather, wood, or rope shall be degreased;

B.1.a.6 No Organic Solvent shall be stored or disposed including waste Organic Solvent and Organic Solvent residues, in such a manner to cause or allow its evaporation into the atmosphere;

B.1.a.7 Waste Organic Solvent and waste Organic Solvent residues shall be managed in compliance with California and Federal requirements applicable to solid wastes, hazardous wastes, or recyclable materials;

B.1.a.8 Organic Solvent agitation, where necessary, shall be achieved only by pump circulation, by means of mixer, or with Ultrasonics. Air agitation shall not be used;

B.1.a.9 Cleaned parts shall be drained for at least 15 seconds after cleaning or until dripping ceases; and

B.1.a.10 Organic Solvent spraying shall be done at least 4 inches below top of vapor layer.

B.1.b Design Requirements (Except Remote Reservoir Cold Cleaners):

B.1.b.1 Freeboard Height shall provide Freeboard Ratio greater than or equal to 0.75;

B.1.b.2 Container (Degreaser) shall be provided for Organic Solvent and objects being degreased;

B.1.b.3 Apparatus or cover shall be provided which prevents Organic Solvent from evaporating when not degreasing objects in Degreaser. Such cover shall be designed to be opened and closed easily with one hand;

B.1.b.4 Device shall be provided for draining cleaned parts such that drained Organic Solvent is returned to a reservoir;

B.1.b.5 If High Volatility Solvent is used, the drainage device shall be internal, so that degreased objects are enclosed under a cover while draining. Such drainage device may be external for applications where internal type cannot fit into cleaning system;

B.1.b.6 A permanent, conspicuous label or sign shall be affixed which lists all requirements of Subsection B.1.a.

B.1.b.7 A permanent, conspicuous mark shall be placed locating maximum allowable solvent level which conforms to applicable Freeboard requirement of B.1.b.1.

B.1.c Control Requirements (Except Remote Reservoir Cold Cleaners)

B.1.c.1 If High Volatility Solvent is used, then one of the following control devices shall be used:

B.1.c.1(a) Water cover if Organic Solvent is insoluble in and heavier than water; or

B.1.c.1(b) Any other system of emission control demonstrated to have overall capture and Control Efficiency equivalent to at least 85%.

B.1.c.2 If Low Volatility Solvent is used, Freeboard Height shall be at least six inches.

B.1.d Design Requirements (Remote Reservoir Cold Cleaners)

B.1.d.1 If High Volatility Solvent is used, cover shall be provided for drain when no objects are degreased;

B.1.d.2 Freeboard Height of at least six inches shall be maintained;

B.1.d.3 Sink-like work area shall be provided which is sloped sufficiently towards drain to preclude pooling of Organic Solvent;

B.1.d.4 Workplace fans shall not be used in manner which disturbs air-vapor interface;

B.1.d.5 A permanent, conspicuous label or sign shall be affixed summarizing applicable operating requirements of Subsection B.1.a; and

B.1.d.6 A permanent, conspicuous mark shall be placed locating maximum allowable Organic Solvent level which conforms to applicable Freeboard requirement of Subsection B.1.d.2.

B.2 Open-Top Vapor Degreasers: Any person who operates an Open-Top Vapor Degreaser shall conform to the following requirements:

B.2.a General Operating Requirements:

B.2.a.1 Degreaser equipment and any emission control equipment shall be operated and maintained in proper working order;

B.2.a.2 Organic Solvent leaks shall be corrected immediately, or Degreaser shut down and drained;

B.2.a.3 No device designed to cover Organic Solvent shall be removed or opened unless degreasing objects work in Degreaser or performing maintenance on Degreaser;

B.2.a.4 If Organic Solvent flow is utilized, only continuous fluid stream (not fine, atomized, or shower type spray) shall be used at pressure which does not cause liquid Organic Solvent to splash outside of the Organic Solvent container;

B.2.a.5 No porous or absorbent materials such as cloth, leather, wood, or rope shall be degreased;

B.2.a.6 No Organic Solvent, including waste Organic Solvent and Organic Solvent residues, shall be stored or disposed of in such a manner as will cause or allow its evaporation into the atmosphere;

B.2.a.7 Waste Organic Solvent and waste Organic Solvent residues shall be managed in compliance with California and Federal requirements applicable to solid wastes, hazardous wastes, or recyclable materials;

B.2.a.8 Organic Solvent agitation, where necessary, shall be achieved only by pump circulation, by means of mixer, or with Ultrasonics. Air agitation shall not be used;

B.2.a.9 Objects to be degreased shall not occupy more than half of the Degreaser's open top area;

B.2.a.10 Organic Solvent spraying shall be done at least (4) four inches below top of vapor layer;

B.2.a.11 Water shall not be visually detectable in Organic Solvent returning from water separator to solvent cleaner;

B.2.a.12 For Open-Top Vapor Degreasers equipped with lip exhaust, exhaust shall be turned off when Degreaser is covered;

B.2.a.13 Organic Solvent carry-out shall be minimized by implementing the following measures:

B.2.a.13(a) Rack degreased objects to allow complete drainage.

B.2.a.13(b) Move objects in and out of Degreaser at less than 3.3 m/min (2.2 inches/sec),

B.2.a.13(c) Degrease objects in vapor zone until condensation ceases,

B.2.a.13(d) Allow degreased objects to dry within Degreaser until visually dry, and

B.2.a.13(e) Tip out any pools of Organic Solvent on degreased objects before removal;

B.2.a.14 If unit is equipped with refrigerated freeboard chiller and/or primary condenser, the following procedures shall be followed:

B.2.a.14(a) When starting up Degreaser, cooling system shall be turned on before, or simultaneously with, sump heater, and

B.2.a.14(b) When shutting down Degreaser, sump heater shall be turned off before, or simultaneously with cooling system;

B.2.a.15 Exhaust ventilation shall not exceed 20 m^3/min per m^2 (65cfm/ft^2) of Degreaser open area, unless necessary to meet OSHA requirements. Ventilation fans shall be positioned to not disturb vapor zone.

B.2.b Design Requirements:

B.2.b.1 Freeboard Height shall provide a Freeboard Ratio greater than or equal to 0.75;

B.2.b.2 Container (Degreaser) shall be provided for Organic Solvent and objects being degreased;

B.2.b.3 An apparatus or cover shall be provided, which prevents Organic Solvent from evaporating when not degreasing objects in the Degreaser. Cover shall be designed to be opened and closed easily without disturbing vapor zone;

B.2.b.4 Device shall be provided for draining degreased objects such that drained Organic Solvent is returned to a reservoir; and

B.2.b.5 A permanent, conspicuous label or signs shall be affixed which lists all operating requirements of Subsection B.2.a.

B.2.c Control Requirements: One of the following or combination of the following control devices shall be utilized:

B.2.c.1 Condenser Equipment with chilled air blanket temperature measured in degrees F at coldest point on vertical axis in center of Organic Solvent cleaner shall be operated at either temperature no greater than 30% of initial boiling point of the solvent used, or 41°F;

B.2.c.2 Enclosed design (cover or door opens only when dry object to be degreased is actually entering or exiting Degreaser);

B.2.c.3 Carbon adsorption system which ventilates air-vapor

interface at minimum rate of 15 m^3/min per m^2 (50cfm/ft^2), but not greater than 20 m^3/min per m^2 (65cfm/ft^2), unless required by OSHA standards, and exhausts less than 25 ppm of Organic Solvent by volume over complete adsorption cycle, and with overall capture and Control Efficiency of 85%; or

B.2.c.4 Any other system of emission control demonstrated to have overall capture and Control Efficiency of at least 85%

B.2.d Safety Switch Requirements:

B.2.d.1 Degreaser shall be equipped with Condenser Flow Switch with Organic Solvent temperature indicator, except where non-water refrigerant is used;

B.2.d.2 Degreaser shall be equipped with Spray Safety Switch; and

B.2.d.3 Degreaser shall be equipped with manual reset Vapor Level Control Thermostat with Organic Solvent temperature indicator.

B.3 Conveyorized Organic Solvent Degreaser: Any person who operates a Conveyorized Organic Solvent Degreaser shall conform to the following requirements:

B.3.a General Operating Requirements:

B.3.a.1 Degreaser equipment and emission control equipment shall be operated and maintained in proper working order;

B.3.a.2 Organic Solvent leaks shall be corrected immediately, or Degreaser shut down and drained;

B.3.a.3 If Organic Solvent flow is utilized, Degreaser shall use only continuous fluid stream (not fine, atomized, or shower type spray) at pressure which does not cause liquid Organic Solvent to splash outside of the Organic Solvent container;

B.3.a.4 No porous or absorbent materials such as cloth, leather, wood, or rope shall be degreased;

B.3.a.5 No Organic Solvent, including waste Organic Solvent and Organic Solvent residues, shall be stored or disposed in such a manner as will cause or allow its evaporation into the atmosphere;

B.3.a.6 Waste Organic Solvent and waste Organic Solvent residues shall be managed in compliance with California and Federal requirements applicable to solid wastes, hazardous wastes, or recyclable materials;

B.3.a.7 Organic Solvent agitation, where necessary, shall be achieved only by pump circulation, by means of a mixer, or with Ultrasonics. Air agitation shall not be used;

B.3.a.8 Organic Solvent carry-out shall be minimized by implementing the following measures:

B.3.a.8(a) Racking degreased objects to allow complete drainage; and

B.3.a.8(b) Maintaining vertical conveyor speed at less than 3.3 meters/min. (2.2 inches/sec);

B.3.a.9 Exhaust ventilation shall not exceed 20 m^3/min per m^2 (65 cfm/ft^2) of Degreaser opening, unless necessary to meet OSHA requirements. Ventilation fans shall be positioned to not disturb vapor zone; and

B.3.a.10 Down-time cover shall be placed over entrances and exits of Conveyorized Degreasers immediately after conveyor and exhaust are shutdown and removed just before start-up.

B.3.b Design Requirements:

B.3.b.1 Container shall be provided for Organic Solvent and objects being degreased;

B.3.b.2 Freeboard Height shall provide Freeboard Ratio greater than or equal to 0.75;

B.3.b.3 An apparatus or cover shall be provided which

prevents Organic Solvent from evaporating when not degreasing objects. Covers shall be provided for closing off entrance and exit during non-operation;

B.3.b.4 Device for draining degreased objects shall be provided such that drained Organic Solvent is returned to a reservoir;

B.3.b.5 For Degreasers with greater than 2 m^2 air/vapor interface, hood or enclosure shall be provided with device or ductwork to collect Degreaser emissions, exhausting to carbon adsorber or equivalent control device;

B.3.b.6 Drying tunnel or other device, such as rotating basket, sufficient to prevent cleaned parts from carrying out Organic Solvent liquid or vapor shall be provided; and

B.3.b.7 Entrances and exits shall be minimized by silhouetting objects to be degreased so that average clearance between objects and edge of Degreaser opening is either less than 10 cm (4in.) Or less than 10 percent of width of opening, whichever is less.

B.3.b.8 A permanent, conspicuous label or sign shall be affixed which lists all operating requirements of B.3.a.

B.3.c Control Requirements: one of the following or combination of the following control devices shall be utilized:

B.3.c.1 Condenser Equipment with chilled air blanket temperature measured in degrees F at coldest point on vertical axis in center of Organic Solvent cleaner shall be operated at temperature no greater than 30% of initial boiling point of Organic Solvent used, or 41°F;

B.3.c.2 Carbon adsorption system which ventilates air-vapor interface at minimum rate of 15m^3/min per m^2 (50 cfm/ft^2), but not greater than 20 m^3/min per m^2 (65 cfm/ft^2), unless required by OSHA standards, and exhausts less than 25 ppm of Organic Solvent by volume over complete adsorption cycle, and with overall capture and Control Efficiency of 85% by weight; or

B.3.c.3 Any other system of emission control demonstrated to have overall capture and Control Efficiency of at least 85%.

B.3.d Safety Switch Requirements:

B.3.d.1 Degreaser shall be equipped with Condenser Flow Switch with Organic Solvent temperature indicator, except where non-water refrigerant is used;

B.3.d.2 Degreaser shall be equipped with Spray Safety Switch; and

B.3.d.3 Degreaser shall be equipped with manual reset Vapor Level Control Thermostat with Organic Solvent temperature indicator.

C. Administrative Requirements

C.1 Record Keeping:

C.1.a Any person subject to requirements of this Rule shall have Organic Solvent manufacturer specification sheets available for review and shall maintain records which show on quarterly basis, following information for each Degreaser:

C.1.a.1 Type of Degreaser,

C.1.a.2 Type of Organic Solvent,

C.1.a.3 Organic Solvent(s) initial boiling point,

C.1.a.4 Volume of Organic Solvent used, and

C.1.a.5 Volume Make-Up Solvent added to Degreaser.

C.1.b Each time waste Organic Solvent or waste Organic Solvent residues are removed from facility, records shall be kept confirming compliance with acceptable disposal methods listed in Subsections B.1.a.7, B.2.a.7, and B.3.a.6.

C.1.c Records shall be maintained for minimum of two years and made available for inspection by Control Officer upon request.

C.2 Test Methods: the following test methods shall apply to this Rule:

C.2.a Initial boiling point of Organic Solvent shall be determined by ASTM 1078-78;

C.2.b Where “add-on” control equipment is utilized, capture efficiency shall be determined using U.S. EPA Methods 204 and 204A through 204F.

C.2.c Analysis of halogenated exempt compounds shall be made using CARB Test Method 422;

C.2.d ROC emissions shall be measured by using U.S. EPA Test Method 25, 25a, or 25b, as applicable, and analysis of halogenated exempt compounds shall be made with CARB Test Method 422; and

C.2.e Exhaust ventilation rates shall be measured using U.S. EPA Test Method 2, 2a, 2b, or 2c.