

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 74.31 – METALWORKING FLUIDS AND DIRECT-CONTACT LUBRICANTS

(Adopted 11/12/2013)

A. Applicability and Purpose

The provisions of this rule apply to any person who uses metalworking fluids or direct-contact lubricants on products or parts; and to any manufacturer or supplier who supplies, sells, or offers for sale either metalworking fluids or direct-contact lubricants for use at industrial or commercial facilities.

This rule shall apply to all Reactive Organic Compound (ROC) containing fluids used for metalworking including, but not limited to, metal removal, metal forming, metal treating, or lubricating operations where the metalworking fluid or direct-contact lubricant come into contact with products or parts including, but not limited to, blanking, broaching, coining, cutting, drilling, drawing, forming, forging, grinding, heading, honing, lapping, marquenching, milling, piercing, quenching, roll forming, rolling, stamping, tapping, threading, turning, and wire drawing.

This rule also applies to ROC containing fluids used for metal protection, including rust and corrosion prevention and inhibition, but shall not apply to coatings, sealants, adhesives, or lubricants regulated by other District rules including, but not limited to, Rule 74.12, Surface Coating of Metal Parts and Products, or 74.13, Aerospace Assembly and Component Manufacturing Operations.

B. Requirements

1. **ROC Content.** No person shall use or solicit the use of any metalworking fluid, vanishing oil, or direct-contact lubricant with a Reactive Organic Compound (ROC) content in excess of the following limits, as applied:

Grams of ROC per Liter of Material (pounds per gallon)

Fluid Category	Effective January 1, 2014
Vanishing Oil	50 (0.42)
Metalworking Fluid:	
Metal Forming	75 (0.63)
Metal Removal – General	75 (0.63)
Metal Removal – Precision Metal	130 (1.08)
Metal Treating	75 (0.63)
Metal Protecting – General	50 (0.42)
Metal Protecting – Military Specified Preservative	340 (2.83)
Direct-Contact Lubricant	50 (0.42)

2. **Depletion of Metalworking Fluid User Inventory:** Until January 1, 2015, a person may use a metalworking fluid or direct-contact lubricant in excess of the applicable ROC content limit if the product was purchased prior to January 1, 2014. Purchase records, sales invoices, or bill of sales may be used to verify eligibility for this provision.
3. **Prohibition of Sale.** No person shall manufacture, supply, offer for sale, sell or distribute to any person a metalworking fluid or direct-contact lubricant for use in the District which, at the time of sale, contains more ROC per liter of material than the corresponding limit in effect in Subsection B.1. The ROC content of metalworking fluids or direct contact lubricants that are normally diluted prior to use shall be calculated using the minimum recommended dilution ratio per product label or product data sheet.

This prohibition of sale shall not apply to a manufacturer or supplier of a non-complying metalworking fluid or direct-contact lubricant provided this fluid or lubricant was sold to an independent distributor that was informed in writing by the manufacturer or supplier that this fluid or lubricant does not comply with District regulations.

This prohibition of sale shall not apply to any metalworking fluid or direct-contact lubricant that is collected and directed to an emission control system that complies with the provision of Subsection B.4.

4. **Control Equipment**

A person may comply with the provisions of Subsection B.1 by using an emission control system provided that:

- a. The control device shall reduce reactive organic compound (ROC) emissions from an emission collection system by at least 95 percent, by weight, or the output of the air pollution control device is no more than 5 ppm ROC by volume calculated as carbon with no dilution, and
- b. The emission collection system has been demonstrated to collect at least 90 percent by weight of the ROC emissions generated by the sources of ROC emissions.
- c. Written approval in the form of an Authority to Construct and a Permit to Operate for such equipment is received from the Air Pollution Control Officer (APCO).
- d. Any approved emission control system shall be maintained and used at all times in proper working condition.

5. **Administrative Requirements**

- a. **Inventory Compliance List:** Any owner or operator subject to this rule shall develop and maintain a VOC or ROC listing of metalworking fluids and direct-contact lubricants purchased for use at the facility. This list shall contain at least the following information and shall be updated within seven (7) calendar days from the date of receipt of a new metalworking fluid or direct contact lubricant at the facility:
 - 1) Name of Company, Facility Address, and APCD Permit Number, if applicable.
 - 2) For each metalworking fluid and direct-contact lubricant: the manufacturer name, product name, product number or ID code, fluid category according to this rule, VOC or ROC content in grams per liter of material, and corresponding ROC limit, if applicable.
 - b. **Monthly Purchase Records:** Monthly purchase records shall be kept of all ROC-containing metalworking fluids and direct-contact lubricants and shall include product supplier, manufacturer name, product name, product number or ID code, and quantities purchased. Monthly purchase records may be used to verify the validity of the inventory compliance list.
 - c. All records shall be retained for a minimum of two years from the date of each entry, and shall be made available to District personnel upon request.
6. **Storage and Disposal of ROC-Containing Materials:** All ROC-containing materials shall be stored in closed vapor-tight, non-leaking, nonabsorbent containers, except while adding or removing them from containers.
7. **Container VOC Labeling Requirement.** No person shall sell or distribute any container whose contents include any metalworking fluid or direct-contact lubricant subject to this rule without displaying the VOC content on the container.

C. Exemptions

- 1. The Sales Prohibition in Subsection B.3 and the Administrative Requirements in Subsection B.5 shall not apply to metalworking fluids and direct-contact lubricants subject to the consumer products regulations of the Air Resources Board (ARB) pursuant to Title 17, California Code of Regulations, beginning at Section 94507.
- 2. The ROC content limits of Subsection B.1 shall not apply to:

- a. The use of any metalworking fluid or direct-contact lubricant subject to ARB Consumer Product Regulations and applied via a hand-held pre-pressurized non-refillable aerosol product, provided 100 cans or less per calendar year are used based on purchase and/or usage records.
 - b. The use of any metalworking fluid or direct contact lubricant for the purpose of maintaining or repairing operator-owned machine tools.
 - c. Research Operations.
3. The Sales Prohibition in Subsection B.2 shall not apply to metalworking fluids and direct-contact lubricants sold in this District for shipment and use outside of this district or for shipment to other manufacturers for repackaging.
 4. The ROC content limits of Subsection B.1 and the Sales Prohibition in Subsection B.2 shall not apply to metalworking fluids or direct-contact lubricants designed by the manufacturer to be used solely for the following operations:
 - a. Lapping;
 - b. Sinker EDM
 - c. Avionics, assembled aircraft or any assembled aircraft component
 - d. Space vehicle components
 - e. Fluids utilizing the control equipment option in Subsection B.4
 5. The Administrative Requirements in Subsection B.5 shall not apply to metalworking fluids that are “Super Compliant,” (ROC content is 50 grams per liter of material or less). If a shop uses both super compliant and non-super compliant materials, the administrative requirements in Subsection B.5 still apply to the non-super compliant materials. Any person claiming this exemption shall provide documentation or other evidence to substantiate this claim, upon request of APCD personnel. This exemption does not apply to metalworking fluids used at metal forging operations.

D. Test Methods and Procedures

The following test methods and procedures shall be used to determine compliance.

1. Determination of ROC Content: ASTM E 1868-10, Standard Test Method for Loss-On-Drying by Thermogravimetry. Quality assurance and quality control procedures shall be conducted using SCAQMD Additional Requirements to ASTM Standard Test Method E 1868-10 Loss on Drying by Thermogravimetry for Rule 1144 Metalworking Fluids and Direct-Contact Lubricants, December 2010. Water content shall be determined by ASTM D 4017-02(2008)e1 (Standard Test Method for Water in Paints and Paint Materials by Karl Fischer Method) if applicable to the specific sample. The exempt solvent content shall be determined

by SCAQMD Method 303-91, Revised August 1996 (Determination of Exempt Compounds).

Exempt Perfluorocarbon Compounds

The following classes of compounds: cyclic, branched, or linear, completely fluorinated alkanes; cyclic, branched, or linear, completely fluorinated ethers with no unsaturations; cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine, will be analyzed as exempt compounds for compliance, only when manufacturers specify which individual compounds are used in the coating formulation. In addition, the manufacturers must identify the USEPA, CARB, or the SCAQMD approved test methods used to quantify the amount of each of these exempt compounds.

2. Determination of Flash Point: ASTM D93-07, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester.
3. The capture efficiency shall be determined according to EPA's technical document, "Guidelines for Determining Capture Efficiency," January 9, 1995, and Methods in 40 CFR 51 Appendix M, Methods 204-204F, as applicable:
Methods 204, Criteria for and Verification of a Permanent or Temporary Total Enclosure
Method 204A, VOC Content in Liquid Input Stream
Method 204B, VOC Emissions in Captured Stream
Method 204C, VOC Emissions in Captured Stream (Dilution Technique)
Method 204D, VOC Emissions in Un-captured Stream from Temporary Total Enclosure
Method 204E, VOC Emissions in Un-captured Stream from Building Enclosure, and
Method 204F, VOC Content in Liquid Input Streams (Distillation Approach)

Control system efficiency shall be determined by 40 CFR 60, Appendix A, Method 18, "Measurement of Gaseous Organic Compound Emissions by Gas Chromatography," Method 25, "Determination of Total Gaseous Non-methane Organic Emissions as Carbon" or Method 25A, "Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer." Alternatively, South Coast AQMD Method 25.1, "Determination of Total Gaseous Non-methane Organic Emissions as Carbon," or SCAQMD Method 25.3(March 2000), "Determination of Low Concentration Non-methane Non-ethane Organic Compound Emissions from Clean Fueled Combustion Sources," may be substituted as applicable.

4. Alternative Test Methods: The use of other test methods may be used in place of test methods specified in this rule if they are determined to be equivalent or better and approved, in writing, by the Air Pollution Control Officer.

E. Violations

Failure to comply with any provision of this rule shall constitute a violation of this rule.

F. Definitions

1. “Direct-Contact Lubricant”: Any fluid that comes into direct contact with the product or part during manufacturing or assembly and is used to reduce friction and to prolong the life of machine tools or machinery. Fluids defined as Metal-Forming Fluids (Subsection F.5) or Metal Removal fluids (Subsection F.8) are not subject to the ROC content limit for direct contact lubricants.
2. “Exempt Organic Compounds”: As defined in Rule 2 of these Rules.
3. "Grams of ROC per Liter of Material"(VOC Actual): The weight of ROC per volume of material and calculated by the following equation:

$$\begin{array}{l} \text{Grams of ROC per Liter} \\ \text{of Material} \end{array} = \frac{W_s - W_w - W_{es}}{V_m}$$

Where: W_s = Weight of volatile compounds (grams)
 W_w = Weight of water (grams)
 W_{es} = Weight of exempt organic compounds (grams)
 V_m = Volume of material (liters)

4. “Lapping”: A manufacturing method that employs particles of an abrasive material, suspended in a liquid carrier, between rotating plates.
5. “Metal Forming Fluid”: Any fluid used at the tool and workpiece interface to facilitate the flow of metal over the tool and to extend the life of the tool. Common metal forming operations include, but are not limited to, blanking, coining, drawing, forming, forging, heading, piercing, roll forming, stamping, and wire drawing.
6. “Metal Protecting Fluid”: Any fluid that inhibits or prevents the corrosion of metal surfaces, and applied independently of any other metalworking, lubricating, or cleaning application.
7. “Metal Protecting – Military Specified Preservative: Any metal protecting preservative that was formulated by the manufacturer to comply with Mil Spec MIL PRF 16173E Class II Corrosion Inhibitor, and is designed to protect ferrous and non-ferrous parts for indoor or covered storage and during shipping.

8. “Metal Removal Fluid”: Any fluid used at the workpiece interface to facilitate the removal of metal from the part, cool the part and tool, extend the life of the tool, and to flush away chips and debris. Common metal removal operations, include, but are not limited to, broaching, cutting, drilling, grinding, honing, lapping, milling, tapping, threading, and turning.
9. “Metal Treating Fluid”: Any fluid used to remove heat from metal parts, affect their hardness, and/or change the grain structure of the metal. Common metal treating operations, include, but are not limited to, marquenching and quenching.
10. “Metalworking Fluid”: Any fluid that facilitates operations involving the working, protecting, or modifying of metals, including metal forming, treating and removal, and may consist of straight oils, emulsifiable oils, synthetic, or semi-synthetic fluids.
11. “Precision Metal Removal Fluid”: Any fluid used for:
 - a. Carbide grinding machine tools where the machine tool manufacturer specifies the viscosity of the fluid, or
 - b. Machining of aluminum or magnesium in single or multiple spindle automatic machines.
12. “Reactive Organic Compound (ROC)”: As defined in Rule 2 of these rules. The term "volatile organic compound" (VOC) is equivalent to ROC.
13. “Research Operation”: Any prototype operation whose product is not designed to be sold and whose sole purpose is to develop something new or test an update of an existing version.
14. “Sinker Electrical Discharge Machining (EDM)”: A method of removing material by a series of rapid recurring electric arcing discharges between an electrode and the workpiece, in the presence of an energetic electric field and in an insulating oil. EDM using a water-based dielectric fluid such as Wire EDM are not included in this definition.
15. “Space Vehicle”: A vehicle designed to travel beyond the earth’s atmosphere.
16. “Solicit”: Solicit is to require for use or to specify by written or oral contract.
17. “Vanishing Oil”: Any direct-contact lubricant or metalworking fluid containing petroleum distillates having a flash point less than 200°F (93°C) and is designed to evaporate from the workpiece after first providing necessary lubrication.