BOARD MEETING DATE: May 2, 2014 AGENDA NO. 28

PROPOSAL: Amend Rule 102 – Definition of Terms

SYNOPSIS: The proposed amendment exempts trans 1-chloro-3,3,3-trifluoropropene from the VOC definition of the rule. The U.S. EPA has already exempted the compound from the federal VOC definition because of its negligible photochemical reactivity level.

COMMITTEE: Stationary Source, February 21, 2014, Reviewed

RECOMMENDED ACTIONS:
Adopt the attached resolution:
1. Certifying the Notice of Exemption for Proposed Amended Rule 102 - Definition of Terms; and
2. Amending Rule 102 – Definition of Terms.

Barry R. Wallerstein, D.Env.
Executive Officer

EC:PF:NB:DD:RC

Background
The U.S. EPA delisted trans 1-chloro-3,3,3-trifluoropropene (also known as HFO-1233zd) from the federal VOC definition because of its negligible contribution to the formation of tropospheric ozone. In October 2013, Honeywell, Inc. petitioned the SCAQMD to include HFO-1233zd as a VOC-exempt compound in Rule 102 – Definition of Terms.

The proposed compound has good cleaning properties and is expected to be used as a compliant substitute solvent for HCFC-225 in vapor degreasing operations for precision cleaning of critical parts used in aerospace and military applications. HCFC-225 is classified as a Class II Ozone Depleting Substance under the Clean Air Act, and is being phased out by the end of 2014.

HFO-1233zd may also be used as a blowing agent for closed cell insulating foams, aerosol cleaner for electronics cleaning, and as a refrigerant in chillers. However, SCAQMD staff is not aware of any transition for these uses, and does not anticipate a shift towards a more expensive option in the absence of any other regulatory drivers.

HFO-1233zd is non-flammable and is low in toxicity based on toxicological studies conducted on the compound. The Office of Environmental Health Hazard Assessment has reviewed the proposed compound's toxicology and has issued an interim evaluation of the compound's toxicity, showing that HFO-1233zd is less toxic than HCFC-225, the compound it is expected to replace in the precision cleaning industry. Furthermore, it is not listed as a hazardous air pollutant under the Clean Air Act; has a negligible ozone depleting potential; and a very low global warming potential value.

Public Process

During the development of Proposed Amended Rule 102, SCAQMD staff worked with industry and other persons affected by the proposed amendment. A public workshop was held on February 19, 2014. Comments received during the public workshop, including staff's responses, are summarized in the Final Staff Report.

Proposal

SCAQMD staff is proposing to add HFO-1233zd to the definition of Group I VOC-exempt compounds in Rule 102. The proposed compound has favorable physical and environmental characteristics, and is suited for inclusion under Group I exempt compounds.

California Environmental Quality Act

Pursuant to the California Environmental Quality Act (CEQA), the SCAQMD is the Lead Agency and has reviewed the proposed project pursuant to the CEQA Guidelines §15002 (k)(1) and §15061. Because the proposed project does not impose new requirements that will create any significant adverse effects on air quality or any other environmental areas, it can be seen with certainty that there is no possibility that the proposed project has the potential to have significant adverse effects on the environment; therefore, it is exempt from CEQA pursuant to CEQA Guidelines §15061(b)(3). The Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties immediately following the adoption of the proposed project.

Cost Impacts

There is no additional compliance cost to users of the compound proposed for exemption since its use is strictly voluntary. However, PAR 102 provides additional flexibility to manufacturers and local facilities by adding an additional exempt solvent; therefore, PAR 102 is not expected to have any adverse socioeconomic impacts.

AQMP and Legal Mandates
The California Health and Safety Code requires that the SCAQMD adopt an Air Quality Management Plan to meet state and federal ambient air quality standards in the Basin. In addition, the California Health and Safety Code requires that the SCAQMD adopt rules and regulations that carry out the objectives of the AQMP.

The proposed amendment to Rule 102 may help reduce VOC emissions by providing additional options in meeting SCAQMD's VOC limits, and supports SCAQMD's air quality objective of achieving state and federal air quality standards.

Implementation and Resources
Current SCAQMD resources are sufficient to implement the proposed amendments with no additional fiscal impact.

Attachments
A. Summary of Proposal
B. Rule Development Process
C. Key Contacts
D. Resolution
E. Proposed Amended Rule 102 Language
F. Final Staff Report
G. Notice of Exemption

ATTACHMENT A

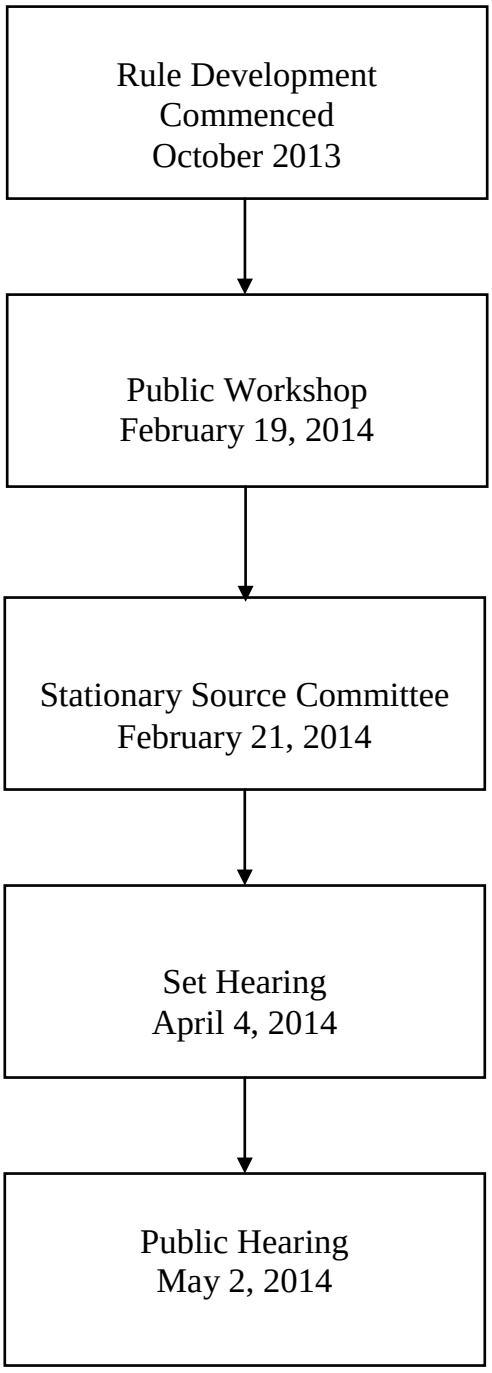
SUMMARY OF PROPOSAL

PROPOSED AMENDED RULE 102 – DEFINITION OF TERMS
The proposed change to the rule is as follows: • Add trans-1-chloro-3,3,3-trifluoropropene (HFO-1233zd) to the list of Group I exempt compounds.

ATTACHMENT B

RULE DEVELOPMENT PROCESS

Proposed Amended Rule 102 – Definition of Terms



Total Time Spent In Rule Development Pre-Board Hearing: 8 Months

ATTACHMENT C

CONTACTS LIST

BFK Solutions
Branson Ultrasonics Corp
Bryant Racing
Corona Magnetics
DNR Industries
eChem
Honeywell
Institute for Research and Technical Assistance (IRTA)
L-3 Communications
Leach International
PSC
Raymond Regulatory Resources (3R), LLC
Stratesys Group
Techspray
Teledyne
Unique Equipment Corporation
Vishay

ATTACHMENT D

RESOLUTION NO. -

A Resolution of the South Coast Air Quality Management District (SCAQMD) Governing Board amending Rule 102 – Definition of Terms.

A Resolution of the SCAQMD Governing Board determining that the proposed amendments to Rule 102 - Definition of Terms are exempt from the requirements of the California Environmental Quality Act (CEQA).

WHEREAS, the SCAQMD Governing Board finds and determines that the proposed amendments to Rule 102 are considered a "project" pursuant to the California Environmental Quality Act (CEQA); however, SCAQMD staff reviewed the proposed project and because it can be seen with certainty that there is no possibility that the proposed project in question has the potential to have a significant adverse effect on the environment, it was determined that the proposed project is exempt from CEQA pursuant to CEQA Guidelines §15061(b)(3) – Review for Exemption; and

WHEREAS, the SCAQMD has had its regulatory program certified pursuant to Public Resources Code Section 21080.5 and has conducted CEQA review and analysis pursuant to such program (Rule 110); and

WHEREAS, SCAQMD staff has prepared a Notice of Exemption for Rule 102, as proposed to be amended, that is completed in compliance with CEQA Guidelines §15002(k)(1) – Three Step Process, and §15061 – Notice of Exemption; and

WHEREAS, the SCAQMD Governing Board has determined that a need exists to amend Rule 102 – Definition of Terms in order to incorporate a compound newly delisted by U.S. EPA from the federal VOC definition; and

WHEREAS, the SCAQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from California Health and Safety (H&S) Code §§39002, 40000, 40001, 40440, 40441, 40702, 41508, and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 102 – Definition of Terms is written and displayed so that the meaning can be easily understood by persons directly affected by it; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 102 – Definition of Terms is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 102 – Definition of Terms does not impose the same requirements as any existing state or federal regulation, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD; and

WHEREAS, the SCAQMD Governing Board in adopting this regulation, references the following statutes which the SCAQMD hereby implements, interprets or makes specific: California H & S Code §§40001, 40440, and 40702; and

WHEREAS, the SCAQMD Governing Board has determined that Proposed Amended Rule 102 – Definition of Terms will not result in increased costs to affected industries and therefore will not result in any adverse socioeconomic impact; and

WHEREAS, a public hearing has been properly noticed in accordance with all provisions of California H & S Code §40725; and

WHEREAS, the SCAQMD Governing Board has held a public hearing in accordance with all provisions of law; and

WHEREAS, the SCAQMD specifies the Manager of the Area Sources section as the custodian of the Rule 102 documents or other materials which constitute the record of proceedings upon which the adoption of this proposed amendment is based, which are located at the South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, California; and

NOW, THEREFORE, BE IT RESOLVED that the SCAQMD Governing Board does hereby determine, pursuant to the authority granted by law, that amendments to Rule 102 – Definition of Terms are exempt from CEQA requirements pursuant to CEQA Guidelines §15002 (k)(1) – Three Step Process and §15061 (b)(3) – Review for Exemption (General Rule Exemption).

BE IT FURTHER RESOLVED that the South Coast Air Quality Management District Board requests that Proposed Amended Rule 102 – Definition of Terms be submitted into the State Implementation Plan.

BE IT FURTHER RESOLVED that the Executive Officer is hereby directed to forward a copy of this Resolution and Proposed Amended Rule 102 – Definition of Terms to the California Air Resources Board for approval and subsequent submittal to the U.S. Environmental Protection Agency for inclusion into the State Implementation Plan.

BE IT FURTHER RESOLVED that the SCAQMD Governing Board hereby amends, pursuant to the authority granted by law, Rule 102 – Definition of Terms, as set forth in the attached, and incorporated herein by this reference.

DATE: _____ _____

CLERK OF THE BOARDS

ATTACHMENT E

(Adopted February 4, 1977)(Amended April 1, 1977)(Amended September 2, 1977)
(Amended November 4, 1988)(Amended July 9, 1993)(Amended November 17, 1995)
(Amended June 13, 1997) (Amended March 13, 1998)(Amended June 12, 1998)
(Amended April 9, 1999)(Amended October 19, 2001)(Amended December 3, 2004)
(Amended September 11, 2009)(Amended March 1, 2013)(Amended May 2, 2014)

PROPOSED AMENDED RULE 102. DEFINITION OF TERMS

Except as otherwise specifically provided in these rules and except where the context otherwise indicates, words used in these rules are used in exactly the same sense as the same words are used in Division 26 of the Health and Safety Code.

AGRICULTURAL BURNING means open outdoor fires used in agricultural operations in the growing of crops or raising of fowl or animals, or open outdoor fires used in forest management, range improvement, or the improvement of land for wildlife and game habitat or disease and pest prevention. Agricultural burning also includes open outdoor fires used in the operation or maintenance of a system for the delivery of water for the purposes specified above.

AGRICULTURAL OPERATIONS means any operation occurring on a ranch or farm directly related to the growing of crops, or raising of fowl or animals for the primary purpose of making a profit or for a livelihood.

AGRICULTURAL PERMIT UNIT means any article, machine, equipment or other contrivance or combination thereof operated at an agricultural source, which is an agricultural operation and may cause or control the emissions of air contaminants that is not exempt from permit. In addition, each of the following at an agricultural source shall be considered a single agricultural permit unit:

(A) All confined animal facilities, except that portion that is conveyorized feed storage and distribution.

(B) All conveyorized feed storage and distribution at confined animal facilities.

(C) All orchard wind machines powered by an internal combustion engine with a manufacturer's rating greater than 50 brake horsepower, and operated more than 30 hours in a calendar year.

AGRICULTURAL SOURCE means a source of air pollution or a group of sources used in the production of crops, or the raising of fowl or animals located on

contiguous property under common ownership or control that meets any of the following criteria:

(A) Is a confined animal facility.

(B) Is a stationary or portable internal combustion engine used in the production of crops or the raising of fowl or animals except an engine that is used to propel implements of husbandry, as that term is defined in Section 36000 of the Vehicle Code, as that section existed on January 1, 2003.

(C) Is a stationary source required by federal law to be included in an operating permit program established pursuant to Title V of the Federal Clean Air Act (42 U.S.C. Sec. 7661 to 7661f, incl.) and the federal regulation adopted pursuant to Title V, or is a source that is otherwise subject to regulation by a district pursuant to this division or the Federal Clean Air Act (42 U.S.C. Sec. 7401 et seq.)

AGRICULTURAL WASTES means unwanted or unsalable materials produced wholly from agricultural operations, other than forest or range management operations, directly related to the growing of crops or animals for the primary purpose of making a profit or for a livelihood. The term does not include wastes created by land use conversion to non-agricultural purposes unless the destruction of such waste by open outdoor fire is ordered by the County or State Agricultural Commissioner upon his determination that the waste is infested with infections transmittable or contagious plant disease which is an immediate hazard to agricultural operations conducted on adjoining or nearby property.

AIR POLLUTION CONTROL OFFICER means the Executive Officer, or designee of the South Coast Air Quality Management District.

AIR CONTAMINANT or air pollutant means any discharge, release, or other propagation into the atmosphere directly or indirectly caused by man and includes, but is not limited to, smoke, charred paper, dust, soot, grime, carbon, fumes, gases, odors, particulate matters, acids or any combination thereof.

ATMOSPHERE (This definition was adopted on November 16, 1954 for the Metropolitan Zone and on November 23, 1973 for the Southern Zone. It is currently applicable only to the Metropolitan and Southern Zones.) "Atmosphere" means the air that envelopes or surrounds the earth. Where air pollutants are emitted into a building not

designed specifically as a piece of air pollution control equipment, such emission into the building shall be considered an emission into the atmosphere.

BASIC EQUIPMENT means any article, machine, equipment or contrivance which causes the issuance of air contaminants.

BREAKDOWN means a condition caused by an accidental fire or non-preventable mechanical or electrical failure.

CLEAN AIR SOLVENT is a VOC-containing material used to perform solvent cleaning, solvent finishing, or surface preparation operations or activities which:

(A) Contains no more than twenty-five (25) grams of VOC per liter of material, as applied;

(B) Has a VOC composite partial vapor pressure less than 5 mm Hg at 20^{o}C (68^{o}F);

(C) Reacts to form ozone at a rate not exceeding that of toluene;

(D) Contains no compounds classified as Hazardous Air Pollutants (HAPs) by the Federal Clean Air Act, or Ozone Depleting Compounds (ODCs) and Global Warming Compounds (GWCs) as defined by the District; and

(E) Has been certified by the District to meet the criteria stated in (A) through (D) according to test methods and procedures approved by the District.

CLEAN AIR SOLVENT CERTIFICATE is a certificate issued by the District to a manufacturer**,** distributor, or facility for a specified product or class of products that meets the criteria for a Clean Air Solvent.

A Clean Air Solvent Certificate shall be valid for five years from the date of issuance, unless some lesser time is designated and written notification is given by the Executive Officer, and shall be renewed upon the Executive Officer's determination that the product(s) continues to meet the criteria for a Clean Air Solvent. However, the Executive Officer may revoke such Certificate if it is determined that the specific product or class of products does not meet the requirements of Clean Air Solvents as defined at the time of issuance.

COMBUSTIBLE REFUSE means any solid or liquid combustible waste material containing carbon in a free or combined state.

COMBUSTION CONTAMINANTS are particulate matter discharged into the atmosphere from the burning of any kind of material containing carbon in a free or combined state.

COMPLIANCE SCHEDULE means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in any air pollution rule, regulation, or statute and with any increment of progress toward such compliance.

CONFINED ANIMAL FACILITY (CAF) means a source or group of sources of air pollution at an agricultural source for the raising of 3,360 or more fowl or 50 or more animals, including but not limited to, any structure, building, installation, farm, corral, coop, feed storage area, milking parlor, or system for the collection, storage, or distribution of solid and liquid manure; if domesticated animals, including but not limited to, cattle, calves, horses, sheep, goats, swine, rabbits, chickens, turkeys, or ducks corralled, penned, or otherwise caused to remain in restricted areas for commercial agricultural purposes and feeding is by means other than grazing.

CONTROL EQUIPMENT means air pollution control equipment which eliminates, reduces or controls the issuance of air contaminants.

DISTRICT means the South Coast Air Quality Management District.

DUSTS are minute solid particles released into the air by natural forces or by mechanical processes including, but not limited to, crushing, grinding, milling, drilling, demolishing, shoveling, conveying, covering, bagging, and sweeping.

EXECUTIVE OFFICER means the Executive Officer or designee of the South Coast Air Quality Management District.

EQUIPMENT means any article, machine, or other contrivance.

EXEMPT Compounds are any of the following compounds

(A) Group I

1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC-43-10mee)

1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC 225cb)

3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC 225ca)

(A) Group I (cont.)

acetone

ethane

chlorodifluoromethane (HCFC-22)

trifluoromethane (HFC-23)

2,2-dichloro-1,1,1-trifluoroethane (HCFC-123)

2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124)

pentafluoroethane (HFC-125)

1,1,2,2-tetrafluoroethane (HFC-134)

1,1,1,2-tetrafluoroethane (HFC-134a)

1,1-dichloro-1-fluoroethane (HCFC-141b)

1-chloro-1,1-difluoroethane (HCFC-142b)

1,1,1-trifluoroethane (HFC-143a)

1,1-difluoroethane (HFC-152a)

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

sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

difluoromethane (HFC-32)

1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane ($C_4F_9OCH_3$)

2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane [$(CF_3)_2CFCF_2OCH_3$]

1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane ($C_4F_9OC_2H_5$)

2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane [$(CF_3)_2CFCF_2OC_2H_5$]

parachlorobenzotrifluoride (PCBTF)

methyl acetate

methyl formate

propylene carbonate

1,1,1,2,3,3,3-heptafluoropropane (HFC-227ea)

trans-1,3,3,3-tetrafluoropropene (HFO-1234ze)

<u>trans-1-chloro-3,3,3-trifluoropropene (HFO-1233zd)</u>

(B) Group II

methylene chloride (dichloromethane)

1,1,1-trichloroethane (methyl chloroform)

trichlorofluoromethane (CFC-11)

dichlorodifluoromethane (CFC-12)

1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113)

1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114)

chloropentafluoroethane (CFC-115)

cyclic, branched, or linear, completely methylated siloxanes (VMS)

tetrachloroethylene (perchloroethylene)

ethylfluoride (HFC-161)

1,1,1,3,3,3-hexafluoropropane (HFC-236fa)

1,1,2,2,3-pentafluoropropane (HFC-245ca)

1,1,2,3,3-pentafluoropropane (HFC-245ea)

1,1,1,2,3-pentafluoropropane (HFC-245eb)

1,1,1,3,3-pentafluoropropane (HFC-245fa)

1,1,1,2,3,3-hexafluoropropane (HFC-236ea)

1,1,1,3,3-pentafluorobutane (HFC-365mfc)

chlorofluoromethane (HCFC-31)

1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a)

1 chloro-1-fluoroethane (HCFC-151a)

The use of Group II compounds and/or carbon tetrachloride may be restricted in the future because they are either toxic, potentially toxic, upper-atmosphere ozone depleters, or cause other environmental impacts. By January 1, 1996, chlorofluorocarbons (CFC), 1,1,1-trichloroethane (methyl chloroform), and carbon tetrachloride were phased out in accordance with the Code of Federal Regulation Title 40, Part 82 (December 10, 1993).

Whenever there is a conflict between the definition of exempt compounds of VOCs in this rule and the definition of exempt compounds of VOCs in another District rule, the definition in Rule 102 shall apply.

FLEET VEHICLES means gasoline-powered motor vehicles as defined by Section 415 of the Vehicle Code and which are operated from one business address.

FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

GASOLINE means any petroleum distillate having a Reid vapor pressure of 200 mm Hg (3.9 pounds per square inch), or greater.

HAZARDOUS AIR POLLUTANT means any air pollutant listed as such by the United States Environmental Protection Agency in accordance with Section 112(b)(1) of the Federal Clean Air Act (42 U.S.C. Sec. 7412(b)(1)).

HEARING BOARD means the Hearing Board of the South Coast Air Quality Management District.

INCREMENTS OF PROGRESS means steps to be taken by an owner or operator to bring a source of air contaminants into compliance. (See definition of "Schedule of Increments of Progress.")

LOADING FACILITY means any aggregation or combination of organic liquid loading equipment which is both possessed by one person, and located so that all the organic liquid loading outlets, for such aggregation or combination of loading equipment can be encompassed within any circle of 90 meters (295 feet) in diameter.

MOTOR VEHICLE is a vehicle which is self-propelled.

MULTIPLE-CHAMBER INCINERATOR means any equipment, structure or part of a structure, used to dispose of combustible refuse by burning, consisting of three or more refractory lined combustion chambers, physically separated by refractory walls, interconnected by gas passage ports or ducts.

OIL-EFFLUENT WATER SEPARATOR means any tank, box, sump or other container in which any petroleum or product thereof, floating on or entrained or contained in water entering such tank, box, sump, or other container, is physically separated and removed from such water prior to outfall, drainage, or recovery of such water.

ORCHARD HEATER or citrus grove heater means any equipment burning any type of fuel or material capable of being used, for the purpose of giving protection from frost damage that is approved by the California Air Resources Board to produce no more than one gram of unconsumed solid carbonaceous material. Equipment commonly known as Wind Machines are not included.

ORCHARD WIND MACHINE means an internal combustion engine powered fan used in orchards or in citrus groves exclusively for the purpose of giving protection from frost damage.

ORGANIC MATERIAL means a chemical compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates and ammonium carbonate.

ORGANIC SOLVENTS include diluents and thinners and are defined as organic materials which are liquids at standard conditions and which are used as dissolvers, viscosity reducers or cleaning agents, except that such material exhibiting a boiling point higher than 104^{o}C (219^{o}F) at 0.5 mm Hg absolute pressure or having an equivalent vapor pressure shall not be considered to be solvents unless exposed to temperatures exceeding 104^{o}C (219^{o}F).

OZONE-DEPLETING COMPOUNDS (ODCs) are Class I substances identified in 40 CFR, Part 82, Appendix A, Subpart A, including, but not limited to the following compounds:

1,1,1-trichloroethane (methyl chloroform)
trichlorofluoromethane (CFC-11)
dichlorodifluoromethane (CFC-12)
1,1,2-trichloro-1,2,2,-trifluoroethane (CFC-113)
1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114)
chloropentafluoroethane (CFC-115)

PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.

PPM means parts per million by volume.

PERSON means any individual, firm, association, organization, partnership, business trust, corporation, company, contractor, supplier, installer, user or owner, or any state or local governmental agency or public district or any other officer or employee thereof. PERSON also means the United States or its agencies to the extent authorized by Federal law.

PHOTOCHEMICALLY REACTIVE SOLVENT means any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of solvent:

(A) A combination of hydrocarbons, alcohols, aldehydes, ethers, esters or ketones having an olefinic or cycloolefinic type of unsaturation except perchloroethylene: 5 percent;

(B) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene, methyl benzoate and phenyl acetate: 8 percent;

(C) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the above groups of organic compounds, it shall be considered as a member of the most reactive chemical group, that is, that group having the least allowable percent of the total volume of solvents.

PM-10 means the particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by applicable State and Federal reference test methods.

PROCESS WEIGHT means the total weight of all materials introduced into any specific process which may discharge contaminants into the atmosphere. Solid fuels charged will be considered as part of the process weight, but liquid gaseous fuels and air will not.

PROCESS WEIGHT PER HOUR means the total process weight divided by the number of hours in one complete operation from the beginning of any given process to the completion thereof, excluding any time during which the equipment is idle.

RECEPTOR AREA means that specified geographic area in which the air contaminants emitted from a source area are present or to which they may be transported.

REDUCTION OF ANIMAL MATTER means any heated process, used for rendering, cooking, drying, dehydrating, digesting, evaporating and protein concentrating of animal matter.

REGULATION means one of the major subdivisions of the Rules of the South Coast Air Quality Management District.

RULE means a rule of the South Coast Air Quality Management District.

SCHEDULE OF INCREMENTS OF PROGRESS means a statement of dates when various steps are to be taken to bring a source of air contaminants into compliance with emission standards and shall include, to the extent feasible, the following:

(A) The dates of submittal of the final plan for the control of emissions of air contaminants from that source to the District.

(B) The date by which contracts for emission control systems or process modifications will be awarded, or the date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification.

(C) The date of initiation of on-site construction or installation of emission control equipment or process change.

(D) The date by which on-site construction or installation of emission control equipment or process modification is to be completed.

(E) The date by which final compliance is to be achieved.

(F) Such other dates by which other appropriate and necessary steps shall be taken to permit close and effective supervision of progress toward timely compliance.

SMALL BUSINESS means a business which is independently owned and operated and meets the following criteria, or if affiliated with another concern, the combined activities of both concerns shall meet these criteria:

(A) the number of employees is 10 or less; and

(B) the total gross annual receipts are $500,000 or less; or

(C) not-for-profit training center.

For the purpose of qualifying for assistance offered by the District's Small Business Assistance Office only, a small business means a business with total gross

annual receipts of $5,000,000 or less, or a business with a total number of employees of 100 or less.

SOLID PARTICULATE MATTER means particulate matter which exists as a solid at standard conditions.

SOURCE AREA means that specified geographic area in which air contaminants are emitted.

STANDARD CONDITIONS are a gas temperature of 60^{O}F and a gas pressure of 760 mm Hg (14.7 pounds per square inch) absolute.

SUBMERGED FILL PIPE means any fill pipe the discharge opening of which is completely submerged when the liquid level is 15 centimeters (6 inches) above the bottom of the container; or when applied to a container which is loaded from the side, it means any fill pipe the opening of which is entirely submerged when the liquid level is 45 centimeters (18 inches) above the bottom of the container.

VEHICLE is a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved by human power or used exclusively upon stationary rails or tracks.

VOLATILE ORGANIC COMPOUND (VOC) is any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

ATTACHMENT F

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Staff Report for Proposed Amended Rule 102 - Definition of Terms

Deputy Executive Officer
Planning, Rule Development, & Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Planning, Rule Development, & Area Sources
Philip M. Fine, Ph.D.

Manager
Planning, Rule Development, & Area Sources
Naveen Berry

April 2014

Author:	Rizaldy Calungcagin - Air Quality Specialist
Reviewed by:	David De Boer, Program Supervisor Nicholas Sanchez, Senior Deputy District Counsel Laki Tisopulos, Ph.D., P.E., Assistant Deputy Executive Officer

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
GOVERNING BOARD

Chairman: DR. WILLIAM A. BURKE
Speaker of the Assembly Appointee

Vice Chairman: DENNIS YATES
Mayor, Chino
Cities of San Bernardino

MEMBERS:

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Supervisor, Fifth District
County of Los Angeles

BEN BENOIT
Mayor Pro Tem, Wildomar
Cities of Riverside County

JOHN J. BENOIT
Supervisor, Fourth District
County of Riverside

JOE BUSCAINO
Councilmember, Fifteenth District
City of Los Angeles

MICHAEL A. CACCIOTTI
Councilmember, South Pasadena
Cities of Los Angeles County/Eastern Region

JOSIE GONZALES
Supervisor, Fifth District
County of San Bernardino

JOSEPH K. LYOU, Ph. D.
Governor's Appointee

JUDITH MITCHELL
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County of Orange

DR. CLARK E. PARKER, SR.
Senate Rules Appointee

MIGUEL A. PULIDO
Mayor, Santa Ana
Cities of Orange County

EXECUTIVE OFFICER:

BARRY R. WALLERSTEIN, D.Env.

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EXECUTIVE SUMMARY

The United States Environmental Protection Agency (U.S. EPA) excluded trans-1-chloro-3,3,3-trifluoropropene, also known as HFO-1233zd, from the federal volatile organic compound (VOC) definition on the basis that the compound has a negligible contribution to tropospheric ozone formation. The U.S. EPA's final ruling, delisting HFO-1233zd as a VOC, became effective on September 27, 2013.

HFO-1233zd is non-flammable and is low in toxicity based on toxicological studies conducted on the compound. It is not listed as a hazardous air pollutant under the Clean Air Act. Further, HFO-1233zd has other desirable environmental properties, specifically, a negligible ozone depleting potential (ODP) and a very low global warming potential (GWP) value.

Primarily due to its favorable solvency properties, HFO-1233zd has a wide range of applications, and can be used in the following areas:

- Precision cleaning of critical parts in aerospace and military applications;
- Blowing agent for closed cell insulating foams;
- Solvent in aerosol products for electronics cleaning; and
- Refrigerant in chillers.

In October 2013, Honeywell, Inc (Honeywell) petitioned the SCAQMD to exempt HFO-1233zd as a VOC-exempt compound in Rule 102 – Definition of Terms. The proposed amendment adds HFO-1233zd to the list of Group I VOC-exempt compounds in the rule, based on staff's favorable review of supporting documents pertaining to the compound. As requested by SCAQMD, the Office of Environmental Health Hazard Assessment (OEHHA) has reviewed the toxicology of HFO-1233zd and has issued an interim evaluation of the compound's toxicity, showing that HFO-1233zd is less toxic than HCFC-225, the compound it is expected to replace in the precision cleaning industry.

Upon exemption, HFO-1233zd is expected to be used as a compliant substitute solvent for HCFC-225 in vapor degreasing operations for precision cleaning of critical parts used in aerospace and military applications. Vapor degreasing operations are subject to SCAQMD Rule 1122–Solvent Degreasers. Although HCFC-225 is a VOC-exempt solvent, it is classified as a Class II Ozone Depleting Substance (ODS) under the Clean Air Act, and is being phased out by the end of 2014. Exempting HFO-1233zd in Rule 102 provides additional alternative for industry to comply with SCAQMD's solvent degreasing rule (Rule 1122).

The proposed amended rule is not anticipated to result in additional emission reductions, considering the primary use will be to replace another exempt solvent that will be phased out by the end of 2014.

BACKGROUND

The U.S. EPA lists chemical compounds that are excluded from the VOC definition based on the compound's negligible contribution to the formation of tropospheric ozone (commonly known as smog). Smog is formed when VOCs react photochemically with nitrogen oxides in the atmosphere. However, VOCs have different reactivity levels, i.e., they do not react to form ozone at the same rate or do not form ozone to the same extent. There are VOCs that react

slowly, and changes in their emissions have limited effects on local or regional ozone pollution episodes. Because of this, the U.S. EPA's policy has been to exclude organic compounds with negligible reactivity level from the regulatory definition of VOCs, which helps states focus emission control efforts on VOCs that significantly increase ozone concentrations.

In determining negligible reactivity, the U.S. EPA compares the reactivity of a given organic compound to that of ethane. Compounds with reactivity levels lower than, or equal to, ethane under the assumed conditions may be deemed negligibly reactive, while compounds that are more reactive than ethane continue to be considered reactive VOCs, and therefore subject to control requirements.

Three primary methods are used by the U.S. EPA when comparing reactivity of a specific compound to that of ethane. The first method is based on the reaction rate constant (k_{OH}) of the compound with the hydroxyl (OH) radical in the air. This reaction is the initial step in a series of chemical reactions in the formation of ozone. A slow reaction means the compound will likely not form ozone at a fast rate.

Two other methods for comparing reactivity levels are based on maximum incremental reactivity (MIR) expressed either on a reactivity per mass (gram) basis or on a reactivity per mole basis. The MIR values are more recently developed measures of photochemical reactivity and consider not only the initial reaction step, but also includes the complete ozone forming activity of a specific organic compound. MIR values are expressed either as grams of ozone formed per mole of VOC (molar basis), or as grams of ozone formed per gram of VOC (mass basis).

On July 19, 2011, Honeywell submitted a petition to the U.S. EPA requesting that HFO-1233zd be excluded from VOC control based on the compound's low reactivity relative to ethane. The MIR on a mass basis for HFO-1233zd is 0.04 grams of ozone formed per gram of VOC, which is only 14 percent of ethane's MIR of 0.28 grams of ozone formed per gram of VOC. In addition, HFO-1233zd's molar-based MIR value calculated as grams of ozone/mole of VOC is lower than ethane's. Based on HFO-1233zd's low photochemical reactivity, the U.S. EPA exempted HFO-1233zd as a VOC effective September 27, 2013.

On October 29, 2013, Honeywell formally petitioned the SCAQMD to amend Rule 102 and also include HFO-1233zd in the rule's "Exempt Compound" definition based on its negligible contribution to tropospheric ozone formation and low toxicity.

A detailed discussion of the properties and potential uses of HFO-1233zd follows this section.

DESCRIPTION OF PROPOSED COMPOUND

HFO-1233zd

HFO-1233zd (CAS # 102687-65-0) is a halogenated olefin, non-flammable liquid with a room temperature boiling point of 66°F. It is also known as trans-1-chloro-3,3,3-trifluoropropene.

On July 19, 2011, Honeywell petitioned the U.S. EPA to exclude HFO-1233zd from VOC controls based on the compound's low reactivity relative to ethane. Table 1 below compares the reactivity of HFO-1233zd to that of ethane.

Table 1 – Comparison of Reactivity of HFO-1233zd and Ethane

	HFO-1233zd	Ethane
k_{OH} (cm3/molecule-sec)	4.40×10^{-13}	2.4×10^{-13}
gram ozone/mole VOC	5.22	8.4
gram ozone/gram VOC	0.04	0.28

From the data above, HFO-1233zd has a higher k_{OH} value than ethane, meaning it initially reacts more quickly in the atmosphere than ethane. However, a molecule of HFO-1233zd is less reactive than a molecule of ethane in terms of ozone formation as shown by the molar-based MIR values calculated as gram ozone/mole VOC. Additionally, the MIR on a mass basis for HFO-1233zd is a low 0.04 grams of ozone formed per gram of VOC, which is only 14 percent that of ethane (ethane's MIR is 0.28 grams of ozone formed per gram of VOC). Because of HFO-1233zd's lower photochemical reactivity than ethane, based on both molar-based and mass-based MIR, this compound is considered to be negligibly reactive in the formation of tropospheric ozone. Hence, the U.S. EPA exempted HFO-1233zd as a VOC effective September 27, 2013.

HFO-1233zd is not listed as a hazardous air pollutant under the Clean Air Act. It has a GWP (100-yr) value of less than 5. GWP is a relative measure of how much heat a greenhouse gas traps in the atmosphere, and compares the amount of heat trapped by a certain mass of a particular gas to the amount of heat trapped by a similar mass of carbon dioxide (CO_2). GWP is expressed as a factor of carbon dioxide (CO_2 GWP = 1). For example, the 100-year GWP of CFC-11 (Freon 11) is 4,750, which means that if the same mass of CFC-11 and CO_2 were introduced into the atmosphere, that CFC-11 will trap 4,750 times more heat than CO_2 over the next 100 years.

Although HFO-1233zd has an ODP of 0.00024 to 0.00034, it is not regulated as an ODS. Additionally, HFO-1233zd contains one chlorine atom, but is expected to have minimal depletion of stratospheric ozone due to a relatively short atmospheric life (26 days).

The following table summarizes the physical and environmental properties of HFO-1233zd.

Table 2 – Physical and Chemical Properties of HFO-1233zd

Description	Clear Liquid
Molecular Formula	C3H2ClF3
CAS Number	102687-65-0
Molecular Weight	130.5 g/mol
Vapor Density	5.3 (relative to air = 1)
Boiling Point	19 C / 66 F
Vapor Pressure at 77°F (25°C)	18.6 psia/126kPa
Liquid Density 77°F (25°C)	10.5 lb/gal/1.26 g/ml
Solubility in Water	1.9 g/L
Liquid Viscosity 77°F (25°C)	0446 cP
Flash Point	None
Lower Explosive Limit	None
Upper Explosive Limit	None
Flammability	Not Flammable
Atmospheric Life	26 days
GWP(100)	< 5
ODP	~ 0
KB Value	25

HFO-1233zd is a highly effective cleaning solution exhibiting excellent solvency for a wide variety of solutes such as mineral oils, silicon oils, silicon greases, fluorinated oils, solder fluxes, cutting oils and others. It is suitable for precision cleaning of electronics and metal parts, including parts for medical devices. It can be used in a vapor degreasing equipment, cold batch cleaning equipment, or may be dispensed from an aerosol can.

HFO-1233zd's high vapor pressure facilitates quick drying of cleaned materials. In addition, its low surface tension provides a good wetting of the parts being cleaned and allows rapid cleaning of intricate parts that contain small channels and crevices. Because of the compound's good cleaning properties, HFO-1233zd is expected to be used as a solvent in vapor degreasing operations for precision cleaning of critical parts used in aerospace and military applications. Facilities engaged in such precision cleaning applications currently use HCFC-225, a VOC-exempt compound, in vapor degreasing operations.

Vapor degreasing operations are subject to SCAQMD Rule 1122–Solvent Degreasers. HCFC-225's VOC-exempt status allows these facilities to comply with the strict solvent VOC limit of 25 grams per liter in Rule 1122. However, HCFC-225 is classified as a Class II ODS under the Clean Air Act, and is being phased out by the end of 2014. Other cleaning solvents available in the market have high VOC contents, and would not meet the VOC limit requirement in Rule 1122.

Last year, Honeywell and its solvent distributor coordinated testing efforts with the affected facilities to determine the efficacy of HFO-1233zd as a substitute solvent for HCFC-225. The results indicate that HFO-1233zd cleaned as well as the HCFC-225, and would be a viable alternative for precision cleaning of aerospace and military parts. Consequently, Honeywell

petitioned SCAQMD to include HFO-1233zd as an exempt compound in Rule 102. Exempting HFO-1233zd in Rule 102 provides an alternative for industry to comply with SCAQMD's solvent degreasing rule (Rule 1122).

It is important to note that HFO-1233zd may not be a drop in replacement for HCFC-225. Affected facilities need to evaluate their existing vapor degreasers to determine whether process modification may be needed for HFO-1233zd to work effectively. Input from a solvent distributor indicates minimal equipment modification cost to the affected facilities.

HFO-1233zd may also be used as a blowing agent in the manufacture of rigid, closed cell polyurethane foams, such as those used in home refrigerators and freezers. Specifically, it is a low GWP (< 5), non-flammable blowing agent and may also be used in spray-applied polyurethane foam for insulating commercial roofs and wall and attic insulation in homes, a growing market under the various energy efficiency programs. Because of its favorable environmental properties, HFO-1233zd can be used as potential replacement for currently used blowing agents such as HFC-245fa (GWP=1030), HFC-365mfc (GWP=794), HCFC-141b (GWP=725), and pentane (GWP=11). Pentane is flammable and is also classified as a VOC.

In addition, HFO-1233zd can be used as an aerosol solvent for cleaning and defluxing printed wiring boards and other electronic devices, and for other degreasing or cleaning applications. HFO-1233zd can potentially replace currently used aerosol solvents such as HCFC-225 (GWP=370), HFC-43-10mee (GWP=1640), HFE-7100 (GWP=297) and n-propyl bromide, which is a VOC. Furthermore, HFO-1233zd can also be used as a replacement refrigerant for HCFC-123 (GWP=77) in low-pressure centrifugal chillers for cooling large buildings. HCFC-123 is a Class II ODS slated for phase out at the beginning of 2015.

HFO-1233zd has a very low order of toxicity based on the results of extensive toxicological testing, as provided by Honeywell, with a published occupational exposure limit (OEL) of 800 ppm. As part of the process of exempting a compound as VOC in Rule 102, SCAQMD not only evaluates the compound's chemical and physical properties and environmental benefits but also assesses any potential adverse health risks associated with the use of such compounds. In January 2014, the SCAQMD requested OEHHA to review the toxicology of HFO-1233zd.

In March 2014, OEHHA completed its evaluation on the toxicity of HFO-1233zd, and issued an Interim Evaluation of the Toxicity of trans-1-Chloro-3,3,3-Trifluoropropene. As a result of the evaluation, OEHHA developed an interim acute reference exposure level (REL) for inhalation exposure of 51 ppm (270,000 $\mu g/m^3$) and a chronic REL of 0.4 ppm (2,100 $\mu g/m^3$). Table 3 shows a comparison of the interim RELs for HFO-1233zd and HCFC-225, which is the compound it intends to replace in vapor degreasing operations.

Table 3 – Comparison of REL Values

Chemical Compound	Interim Acute REL ($\mu g/m^3$)	Interim Chronic REL ($\mu g/m^3$)
HFO-1233zd [A]	270,000 (51 ppm)	2100 (0.4 ppm)
HCFC-225 [B]	1600 (0.2 ppm)	80 (0.01 ppm)

[A] Interim Evaluation of the Toxicity of trans-1-Chloro-3,3,3-Trifluoropropene, Office of Environmental Health Hazard Assessment, March 2014

[B] CARB, Environmental Impact Assessment of Selected Halogenated Chemicals, Staff Report, March 2008

The higher REL values for HFO-1233zd indicate that the compound would allow for higher exposure compared to HCFC-225, which also translates to a higher usage allowance.

As stated earlier, HFO-1233zd will be used primarily to replace HCFC-225 in vapor degreasing operations. Current vapor degreasers are designed to meet strict emission control standards such as the installation of various safety control switches, primary condensing coils, automated parts handling system, and higher freeboard ratios. These controls translate to lower solvent emissions and, thus, reducing worker exposure from vapor degreasing operations. In addition, some facilities converting to HFO-1233zd plan on installing additional emission controls, e.g., a refrigerated freeboard chiller that would further minimize solvent losses and reduce worker exposure.

Staff is not anticipating usage increase of HFO-1233zd in foam blowing and aerosol solvent cleaning due to HFO-1233zd's high cost and lack of regulatory drivers to push the industry to switch away from their current solvents. The cost of HFO-1233zd is about $17 per pound versus $1 per pound for pentane, which is the most common blowing agent in foam manufacturing. If amendments to existing Rule 1175 – Control of Emissions from the Manufacture of Polymeric Cellular (Foam) Products requiring additional VOC controls are considered, staff will conduct an environmental assessment to review any potential adverse impacts.

LEGISLATIVE AUTHORITY

The California Legislature created the South Coast Air Quality Management District (SCAQMD) in 1977 (The Lewis-Presley Air Quality Management Act, California Health and Safety Code Section 40400 et seq.) as the agency responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin). By statute, the SCAQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all state and federal ambient air quality standards for the Basin [California Health and Safety Code Section 40460(a)]. Furthermore, the SCAQMD must adopt rules and regulations that carry out the AQMP [California Health and Safety Code Section 40440(a)].

PROPOSED RULE AMENDMENT

Staff's proposal adds HFO-1233zd to the definition of Group I VOC-exempt compounds in Rule 102. Based on data from Honeywell, HFO-1233zd has a very low order of toxicity, and an ultra low global warming potential (GWP < 5). Furthermore, HFO-1233zd is not considered as an ozone depleting substance; thus, this compound is suited for inclusion under Group I exempt compounds.

EMISSIONS INVENTORY AND REDUCTIONS

The proposed amended rule is not anticipated to result in additional VOC emission reductions, considering the primary use will be to replace another exempt solvent that will be phased out by the end of 2014. However, the use of HFO-1233zd as replacement for high-GWP compounds in foam manufacturing and degreasing applications would result in greenhouse and ozone depleting gas emission reductions.

COST IMPACTS

There is no additional cost to users of the compound proposed for exemption since its use is strictly voluntary. However, PAR 102 provides additional flexibility to manufacturers and local facilities by adding an additional exempt solvent; therefore, PAR 102 is not expected to have any adverse socioeconomic impacts.

INCREMENTAL COST-EFFECTIVENESS

California Health and Safety Code Section 40920.6 requires the SCAQMD to perform an incremental cost effectiveness analysis when adopting a Best Available Retrofit Control Technology (BARCT) rule or feasible measure required by the California Clean Air Act. To perform this analysis, the SCAQMD must (1) identify one or more control options achieving the emission reduction objectives for the proposed rule; (2) determine the cost-effectiveness for each option; and (3) calculate the incremental cost effectiveness for each option. To determine incremental costs, the SCAQMD must "calculate the difference in the dollar costs divided by the difference in the emission reduction potentials between each progressively more stringent potential control option as compared to the next less expensive control option." The proposed amendments to Rule 102 do not implement a more restrictive BARCT or feasible control measure; therefore, Section 40920.6 is not applicable.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The SCAQMD has reviewed the proposed amendments to Rule 102 pursuant to CEQA Guidelines §15002(k)(1) – Three Step Process, for deciding which document to prepare for a project subject to CEQA and CEQA Guidelines §15061 – Review for Exemption, and has determined that the proposed amendments are exempt from CEQA pursuant to CEQA Guidelines §15061 (b)(3). Evaluation of the proposed project resulted in the conclusion that it will not create any adverse effects on air quality, toxics, hazards or any other environmental areas. The proposed project may produce beneficial effects by reducing VOC emissions and may reduce potential hazard impacts at facilities that replace currently used organic compounds with HFO-1233zd. Since it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment, it is exempt from CEQA pursuant to CEQA Guidelines §15061(b)(3). If adopted, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties immediately following the adoption of the proposed project.

COMPARATIVE ANALYSIS

The proposed amendment to Rule 102 does not impose emission control requirements on any equipment or source and, therefore, the analysis required by the California Health and Safety Code §40727.2 cannot be performed.

DRAFT FINDINGS UNDER THE CALIFORNIA HEALTH AND SAFETY CODE

Before adopting, amending, or repealing a rule, the California Health and Safety Code requires the SCAQMD to adopt written findings of necessity, authority, clarity, consistency, non-duplication, and reference, as defined in Section 40727. The draft findings are as follows:

Necessity - The SCAQMD Governing Board has determined that a need exists to amend Rule 102 - Definition of Terms to incorporate a new compound delisted by U.S. EPA from the federal VOC definition.

Authority - The SCAQMD Governing Board obtains its authority to adopt, amend, or repeal rules and regulations from the California Health and Safety Code sections 39002, 40000, 40001, 40440, 40441, 40702, 41508, and 41700.

Clarity - The SCAQMD Governing Board has determined that the proposed amendment to Rule 102 - Definition of Terms is written or displayed so that its meaning can be easily understood by persons directly affected by it.

Consistency - The SCAQMD Governing Board has determined that Proposed Amended Rule 102 - Definition of Terms is in harmony with, and not in conflict with or contradictory to, existing federal or state statutes, court decisions, or regulations.

Non-Duplication - The SCAQMD Governing Board has determined that the proposed amendment to Rule 102 - Definition of Terms does not impose the same requirement as any existing state or federal regulation, and the proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD.

Reference - In adopting this regulation, the SCAQMD Governing Board references the following statutes which the SCAQMD hereby implements, interprets or makes specific: Health and Safety Code sections 40001, 40440, and 40702.

PUBLIC COMMENTS AND RESPONSES

COMMENT: I am concerned that the exposure limit of 800 PPM established for HFO-1233zd may be too high and not justified based on the results of the 90-day sub-chronic inhalation toxicity study. Such exposure limit may be too high to protect workers in high exposure applications, e.g. aerosol cleaning and in spray foam application.

RESPONSE: Staff asked Honeywell to clarify the result of the sub-chronic inhalation toxicity study and how it was used to establish the 800 ppm exposure limit.

Based on information provided by Honeywell, the Workplace Environmental Exposure Level (WEEL) value of 800 PPM for HFO-1233zd was set by the WEEL Committee which consists of an independent group of experts, and operates under the auspices of the Occupational Alliance for Risk Science. The WEEL Committee reviewed the results of all toxicity tests commissioned by Honeywell and carried out by several different and well-qualified toxicology laboratories in the US and Europe.

The information provided to the WEEL Committee included an assessment of the results of the sub-chronic inhalation study by an expert veterinary pathologist at one of the top pathology groups in the country. The peer reviewer determined that the No Observed Adverse Effect Level (NOAEL) in the sub-chronic test was 4000 ppm.

Peer review was requested by Honeywell to ensure consistency in the interpretation of results and the nomenclature used to describe them. However, the peer reviewer did not participate in the WEEL Committee's deliberations.

COMMENT: There was a concern expressed over the notation in the Material Safety Data Sheet (MSDS) indicating that the decomposition products (by combustion) of HFO-1233zd may include hydrofluoric acid (HF) and hydrochloric acid (HCl).

RESPONSE: HFO-1233zd is non-flammable and extremely stable. The potential decomposition to HF and HCl, as indicated in the MSDS, may occur when the compound is exposed to extremely high temperatures (> 250 °C or >482 °F). However, HFO-1233zd is unlikely to break down in any of its intended applications, such as in a vapor degreaser, where the operational temperature is much lower. In a catastrophic event, such as fire, the decomposition of HFO-1233zd will be similar to those from other commonly used fluorinated hydrocarbons, e.g., HCFC-225, HFC-43-10 and HFE-7100.

COMMENT: We support the immediate modification of Rule 102 to add HFO-1233zd to the "Exempt Compounds" definition in the rule.

RESPONSE: Staff acknowledges the comment in support of the proposed amendment.

REFERENCES

Federal Register, Volume 78, Number 167

Honeywell. Solstice Performance Fluid. Material Safety Data Sheet (04/23/2013).

K.O. Patten and D.J. Wuebbles. Atmospheric lifetimes and Ozone Depletion Potentials of trans-1-chloro-3,3,3-trifluoropropylene and trans-1,2-dichloroethylene in a three dimensional model

William P.L. Carter. Investigation of Atmospheric Ozone Impacts of trans 1-chloro-3,3,3-trifluoropropene

Honeywell Toxicology Summary. Trans-1-chloro-3,3,3-trifluoropropene

Workplace Environmental Exposure Level (WEEL). Trans-1-chloro-3,3,3-trifluoropropene

Garry M. Hoffman, BA, DABT. Acute (4-hour) inhalation toxicity study with HCFO-1233zd in rats

Internet Materials:

Solstice Liquid Blowing Agent
(http://www.honeywell-blowingagents.com)

Precision Cleaning in 21st Century: New Solvent with Low Global Warming Potential
(http://www.ipcoutlook.org/pdf/precision_cleaning.pdf)

Solstice Performance Fluid Technical Bulletin
(http://www.honeywell.com)

New Chemical to reduce Climate Impact of Foam Insulation
(http://www.buildinggreen.com)

Solstice Performance Fluid. Precision Cleaning Power for Demanding Applications
(http://www.honeywell.com)

Solstice Performance Fluid. Superior Cleaning for Military and Aerospace Applications
(http://www.honeywell.com)

Honeywell Solstice Liquid Blowing Agent. High Performance Refrigerator Insulation
(http://www.honeywell.com)

Global Warming Potential
(http://en.wikipedia.org/wiki/Global-warming_potential)

ATTACHMENT G

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

PROJECT TITLE: **PROPOSED AMENDED RULE 102 – DEFINITION OF TERMS**

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, the South Coast Air Quality Management District (SCAQMD) is the Lead Agency and will prepare a Notice of Exemption for the project identified above.

The United States Environmental Protection Agency (U.S. EPA) excluded trans-1-chloro-3,3,3-trifluoropropene, also known as HFO-1233zd, from the federal volatile organic compound (VOC) definition on the basis that the compound has a negligible contribution to tropospheric ozone formation. The U.S. EPA's final ruling, delisting HFO-1233zd as a VOC, became effective on September 27, 2013. HFO-1233zd is non-flammable and is low in toxicity based on toxicological studies conducted on the compound. It is not listed as a hazardous air pollutant under the Clean Air Act. Further, HFO-1233zd has other desirable environmental properties, specifically, a negligible ozone depleting potential (ODP) and a very low global warming potential (GWP) value.

Based on staff's review of relevant data pertaining to this compound, the SCAQMD is now proposing to add HFO-1233zd to the list of compounds exempt from the definition of VOC in Rule 102's Group I compounds. Evaluation of the proposed project resulted in the conclusion that it will not create any adverse effects on air quality, toxics, hazards or any other environmental areas. Since it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment, it is exempt from CEQA pursuant to CEQA Guidelines §15061(b)(3) – Review for Exemption. Upon adoption, the Notice of Exemption will be filed with the county clerks of Los Angeles, Orange, Riverside and San Bernardino counties.

Any questions regarding this Notice of Exemption should be sent to Jeff Inabinet (c/o Planning, Rule Development & Area Sources) at the above address. Mr. Inabinet can also be reached at (909) 396-2453.

Date: May 2, 2014 **Signature:** _____

Michael Krause
Program Supervisor – CEQA Section
Planning, Rule Development &
Area Sources

Reference: California Code of Regulations, Title 14

NOTICE OF EXEMPTION

To:	County Clerks of Los Angeles, Orange, Riverside, San Bernardino	**From:**	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

Project Title:

Proposed Amended Rule 102 – Definition of Terms

Project Location:

South Coast Air Quality Management District (SCAQMD) area of jurisdiction consisting of the four-county South Coast Air Basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties), and the Riverside County portions of the Salton Sea Air Basin and the Mojave Desert Air Basin.

Description of Nature, Purpose, and Beneficiaries of Project:

The U.S. EPA excluded trans-1-chloro-3,3,3-trifluoropropene, also known as HFO-1233zd, from the federal volatile organic compound (VOC) definition on the basis that the compound has a negligible contribution to tropospheric ozone formation. The U.S. EPA's final ruling, delisting HFO-1233zd as a VOC, became effective on September 27, 2013. HFO-1233zd is non-flammable and is low in toxicity based on toxicological studies conducted on the compound. It is not listed as a hazardous air pollutant under the Clean Air Act. Further, HFO-1233zd has other desirable environmental properties, specifically, a negligible ozone depleting potential (ODP) and a very low global warming potential (GWP) value. Based on staff's review of relevant data pertaining to this compound, the SCAQMD is now proposing to add HFO-1233zd to the list of compounds exempt from the definition of VOC in Rule 102's Group I compounds. HFO-1233zd is expected to be used as a compliant substitute solvent for HCFC-225 in vapor degreasing operations for precision cleaning of critical parts used in aerospace and military applications. However, due to its favorable solvency properties, HFO-1233zd has a wide range of applications and can also be used as a blowing agent for closed cell insulating foams; as a solvent in aerosol products for electronics cleaning; and as a refrigerant in chillers. The proposed amended rule is not anticipated to result in additional emission reductions, considering the primary use will be to replace another exempt solvent that will be phased out by the end of 2014.

Public Agency Approving Project:	**Agency Carrying Out Project:**
South Coast Air Quality Management District	South Coast Air Quality Management District

Exempt Status:

General Concepts [CEQA Guidelines §15002 (k)(1)]; and
General Rule Exemption [CEQA Guidelines §15061 (b)(3)]

Reasons why project is exempt:

The SCAQMD has reviewed the proposed amendments to Rule 102 pursuant to CEQA Guidelines §15002(k)(1) – Three Step Process, and CEQA Guidelines §15061 – Review for Exemption, and has determined that the proposed amendments are exempt from CEQA pursuant to CEQA Guidelines §15061 (b)(3) ("General Rule Exemption"). Evaluation of the proposed project resulted in the conclusion that it will not create any adverse effects on air quality, toxics, hazards or any other environmental areas. The proposed project may produce beneficial effects by reducing VOC emissions. The proposed project may also reduce potential hazard impacts at facilities that replace currently used organic compounds with HFO-1233zd. Since it can be seen with certainty that there is no possibility that the proposed project may have a significant adverse effect on the environment, it is exempt from CEQA pursuant to CEQA Guidelines §15061(b)(3) – Review for Exemption.

Project Approval Date:

SCAQMD Governing Board Hearing: May 2, 2014, 9:00 a.m.; SCAQMD Headquarters

CEQA Contact Person:	**Phone Number:**	**Fax Number:**	**Email:**
Mr. Jeffrey Inabinet	(909) 396-2453	(909) 396-3324	<jinabinet@aqmd.gov>
Rule Contact Person:	**Phone Number:**	**Fax Number:**	**Email:**
Mr. Rizaldy Calungcagin	(909) 396-2315	(909) 396-2414	<rcalungcagin@aqmd.gov>

Date Received for Filing_____

Signature *Signed upon project approval*

Michael Krause
Program Supervisor – CEQA Section
Planning, Rule Development
and Area Sources

ERRATA SHEET FOR AGENDA ITEM 28
Amend Rule 102 – Definition of Terms
May 2, 2014

PROPOSED AMENDED RULE 102

At the end of page 5, add the following rule language shown in **BOLD DOUBLE UNDERLINE**

EXEMPT Compounds are any of the following compounds

(A) Group I (cont.)
trans-1-chloro-3,3,3-trifluoropropene (HFO-1233zd) **(see exemption limitation below)**

Trans-1-chloro-3,3,3-trifluoropropene (HFO-1233zd) shall be considered exempt as a volatile organic compound only if used in vapor degreasing equipment operating in accordance with the work practice and design requirements in Rule 1122.

RESOLUTION

After the second **WHEREAS…**delete (in **BOLD STRIKEOUT**) and add (in **BOLD DOUBLE UNDERLINE)** the following language:

WHEREAS, SCAQMD staff has prepared a Notice of Exemption for Rule 102, as proposed to be amended, that is completed in compliance with CEQA Guidelines §15002(k)(1) – Three Step Process, and §15061**(b)(3)** – ~~**Notice of**~~ **Review for** Exemption **(General Rule Exemption)**; and

WHEREAS, the Notice of Exemption, the May 2, 2014 Board letter, and other supporting documentation were presented to the SCAQMD Governing Board and the Governing Board has reviewed and considered the entirety of this information prior to approving the project; and

After the last **WHEREAS…** add the following language shown in **BOLD DOUBLE UNDERLINE**

WHEREAS, the SCAQMD Governing Board finds and determines, taking into consideration the factors in §(d)(4)(D) of the Governing Board Procedures, that the modifications which have been made to Proposed Amended Rule 102 – Definition of Terms since notice of public hearing was published do not significantly change the meaning of the proposed project within the meaning of Health and Safety Code §40726; and

WHEREAS, the SCAQMD Governing Board directs staff to continue to work with stakeholders to analyze the exemption of Trans-1-chloro-3,3,3-trifluoropropene (HFO-1233zd) for other uses and report back to the Stationary Source Committee within 180 days.