COMPLYING WITH THE SECTION 608 REFRIGERANT RECYCLING RULE pdf

1: Fact Sheet: Final Rule Summary: Complying With the Section Refrigerant Recycling Rule

Observing the refrigerant recycling regulations for Section is essential in order to conserve existing stocks of refrigerants, as well as to comply with Clean Air Act requirements.

Projects Gallery Compliance Knowing and understanding current laws and regulations is challenging for anyone handling refrigerant. Rapid Recovery was built around the need for contractor compliance. The laws imposed on our industry create significant challenges. With knowledge of the rules and regulations we can help bring you out of violation and into compliance. Rapid Recovery utilizes both EPA certified technicians and recovery equipment. Every pound of refrigerant we recover is tracked to meet governmental regulations, and documented for you. Our people, our equipment, and our philosophy are all designed to help your customer understand that you are focused on their best interests. Are You Ready for the new Section Requirements? View the webinar recording to learn more about these new updates and make sure that you are prepared to follow these new requirements. Documentation Rapid Recovery provides all the required documentation for your records. Each pound of refrigerant we recover will be tracked and documented. If you received notice of an EPA refrigerant audit today would you be at ease with your record keeping? Are your technicians consistently and accurately recording all required information for each unit at each job? Is that information then correctly catalogued and filed for quick access during an audit? When Rapid Recovery is involved in your projects you will be at ease knowing your EPA worrying days are over. Certified Equipment Rapid Recovery utilizes an incredibly high speed â€" gasoline powered recovery machine. To meet the compliance needs of our customers our equipment has been custom designed to be as fast as possible and at the same time has been subjected to the rigors of the AHRI certification process. Certified Technicians Rapid Recovery utilizes only high quality personnel. All of our technicians are universally certified to meet your every recovery need. In fact our technicians will always impress. They are uniformed and are ready to help make every project a pleasure. Our vehicles are high quality â€" professional machines, and our equipment will impress anyone with its abilities. Refrigerant Tracking How good are your technicians at recording the pounds of refrigerant they recovered from a unit? Rapid Recovery specializes in EPA compliance. We also know that the EPA requires all refrigerant that your company is involved with is properly documented. All refrigerant that Rapid Recovery handles will be properly tracked and documented for you. Phase Out of Ozone Depleting Refrigerants A big challenge to the refrigeration and air conditioning industry is the need to move away from older refrigerants like R Certainly, both contributors to the growing concern of global climate change, which is generating more and more public awareness. These growing concerns led to the Montreal Protocol, which the United States signed in Want to learn more about the Phaseout?

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2: ICC Certification renewal Course

Overview â€¢Overview of the National Refrigerant Management Program â€¢Highlight of some specific changes â€¢Outcomes of the rule â€¢Questions Disclaimer: This presentation provides an overview for discussion purposes only.

The fact sheet also describes the prohibition on vent- ing that became effective on July 1, The Prohibition on Venting Effective July 1, , Section of the Act prohibits individuals from knowingly venting ozone-depleting compounds used as refrigerants into the atmosphere while main- taining, servicing, repairing, or disposing of air-conditioning or refrigeration equipment appliances. Only four types of releases are permitted under the prohibition: Refrigerants emitted in the course of normal operation of air-conditioning and refrigeration equipment as opposed to. However, EPA requires the repair of leaks above a certain size in large equip- ment see p. Small releases of refrigerant that result from purging hoses or from connecting or disconnecting hoses to charge or service appliances will not be considered violations of the prohibition on venting. However, recovery and recycling equip- ment manufactured after November 15, , must be equipped with low-loss fittings. Since, July 13, , technicians have been re- quired to evacuate air-conditioning and refrigeration equipment to established va- cuum levels when opening the equipment. Persons who simply add refrigerant to top-off appliances are not required to evacuate the systems. Before Nov; 1 5, 0 4 ;4 4 0 25 On or after Nov. Technicians may also satisfy- recov- ery requirements by evacuating the small appliance to four inches of mercury vacuum. Exceptions to Evacuation Require- ments. EPA has established limited excep- tions to its evacuation requirements for 1 repairs to leaky equipment and 2 repairs that are not major and that are not followed by an evacuation of the equipment to the environment. This level cannot exceed 0 psig. If evacuation of the equipment to the environment is not to be performed when repairs are complete, and if the repair is not major, then the appliance must: Methods that require subsequent purging e. If refrigerant changes ownership, however, that refriger- ant must be reclaimed i. Equipment Certification The Agency has established a certifica- tion program for recovery and recycling equipment. Recycling and recovery equipment intended for use with air-conditioning and refrigeration equipment besides small appliances must be tested under the ARI test protocol, which is included in the final rule as Appen- dix B. Recovery equipment intended for use with small appliances must be tested under either the ARI protocol or Appen- dix C of the final rule. The Agency requires recovery efficiency standards that vary depending on the size and type of air-conditioning or refrigeration equipment being serviced. For recovery and recycling equipment intended for use with air-conditioning and refrigeration equipment besides small appliances, these standards are the same as those in the second column of Table 1. Recovery equipment intended for use with small appliances must be able to recover 90 percent of the refrigerant in the small appliance when the small appliance compressor is operating and 80 percent of the refrigerant in the small appliance when the compressor is not operating. Equipment Grandfathering Equipment manufactured before Novem- ber 15, , including home-made equip- ment, may be grandfathered if it meets the standards in the first column of Table 1. Third-party testing is not required for equip- ment manufactured before November 15, , but equipment manufactured on or after that date, including home-made equip- ment, must be tested by a third-party see Equipment Certification above. For the commercial and industrial process refrigeration sectors, leaks must be repaired when the appliance leaks at a rate that would release 35 percent or more of the charge over a year. For all other sectors, including comfort cooling, leaks must be repaired when the appliance leaks at a rate that would release 15 percent or more of the charge over a year. The trigger for repair requirements is the current leak rate rather than the total quantity of refrigerant lost. For instance, owners of a commercial refrigeration system containing pounds of charge must repair leaks if they find that the system has lost 10 pounds of charge over the past month; although 10 pounds represents only 10 percent of the system charge in this case, a leak rate of 10 pounds per month would result in the release of over percent of the charge over the year. To track leak rates, owners of air-conditioning and

refrig- eration equipment with more than 50 pounds of charge must keep records of the quantity of refrigerant added to their equipment during servicing and maintenance proce- dures. Owners are required to repair leaks within 30 days of discovery. This require- ment is waived if, within 30 days of discov- ery, owners develop a one-year retrofit or retirement plan for the leaking equipment. For example, if an industrial process shutdown is required to repair a leak, owners have days to repair the leak. Owners of leaky industrial process refrigeration equipment should see the Compliance Assistance Guidance Docu- ment for Leak Repair for additional infor- mation concerning time extensions and pertinent recordkeeping and reporting re- quirements. Technician Certification EPA has established a technician certifi- cation program for persons "technicians" who perform maintenance, service, repair, or disposal that could be reasonably expect- ed to release refrigerants into the atmos- phere. The definition of "technician" specif- ically includes and excludes certain activities as follows: In addition, apprentices as defined on page 10 are exempt from certification require- ments provided the apprentice is closely and continually supervised by a certified tech- nician. The Agency has developed four types of certification: Technicians are required to pass an EPA-approved test given by an EPA-ap- proved certifying organization to become certified under the mandatory program. The Stratospheric Ozone Hotline distributes lists. Persons servicing appliances other than motor vehicle air conditioners may still buy containers of CFC larger than 20 pounds. The sales restriction covers refrigerant contained in bulk containers cylinders or drums and pre-charged parts. The restriction excludes refrigerant contained in refrigerators or air conditioners with fully assembled refrigerant circuits such as household refrigerators, window air conditioners, and packaged air conditioners , pure HFC refrigerants, and CFCs or HCFCs that are not intended for use as refrigerants. In addition, a restriction on sale of pre-charged split systems has been stayed suspended while EPA recon- siders this provision. Certification by Owners of Recycling and Recovery Equipment EPA requires that persons servicing or disposing of air-conditioning and refriger- ation equipment certify to the appropriate EPA Regional Office that they have ac- quired built, bought, or leased recovery or recycling equipment and that they are com- plying with the applicable requirements of this rule. This certification must be signed by the owner of the equipment or another responsible officer and sent to the appropri- ate EPA Regional Office. A sample form for this certification is attached. Although owners of recycling and recovery equipment are required to list the number of trucks based at their shops, they do not need to have a piece of recycling or recovery equip- ment for every truck. Owners do not have to send in a new form each time they add recycling or recovery equipment to their inventory. Reclaimer Certification Reclaimers are required to return refrig- erant to the purity level specified in ARI Standard an industry-set purity standard and to verify this purity using the laboratory protocol set forth in the same standard. In addition, reclaimers must re- lease no more than 1. Reclaim- ers must certify to the Section Recy- cling Program Manager at EPA headquarters that they are complying with these require- ments and that the information given is true and correct. Certification must also include the name and address of the reclaimer and a list of equipment used to reprocess and to analyze the refrigerant. EPA encourages reclaimers to partici- pate in third-party reclaimer certification programs, such as that operated by the Air- Conditioning and Refrigeration Institute ARI. Like MVACs in cars and trucks, these air conditioners typically contain two or three pounds of CFC and use open-drive compressors to cool the passenger compartments of vehicles. Vehi- cle air conditioners utilizing HCFC are not included in this group and are therefore subject to the requirements outlined above for HCFC equipment. Howev- er, equipment that typically enters the waste stream with the charge intact e. Under these requirements, the final person in the disposal chain e. However, persons "up- stream" can remove the refrigerant and provide documentation of its removal to the final person if this is more cost-effective. The equipment used to recover refriger- ant from appliances prior to their final dis- posal must meet the same performance stan- dards as equipment used prior to servicing, but it does not need to be tested by a labora- tory. This means that self-built equipment is allowed as long as it meets the perfor- mance requirements. For MVACs and MVAC-like appliances, the performance requirement is mm of mercury vacuum and for small appliances, the recovery equipment performance requirements are 90 percent efficiency

when the appliance com- pressor is operational, and 80 percent effi- ciency when the appliance compressor is not operational. Technician certification is not required for individuals removing refrigerant from appliances in the waste stream. The safe disposal requirements went into effect on July 13, Equipment must be registered or certified with the Agency. A sample form is attached. Major Recordkeeping Requirements Technicians servicing appliances that con- tain 50 or more pounds of refrigerant must provide the owner with an invoice that indicates the amount of refrigerant added to the appliance. Technicians must also keep a copy of their proof of certification at their place of business. Owners of appliances that contain 50 or more pounds of refrigerant must keep ser- vicing records documenting the date and type of service, as well as the quantity of refrigerant added. Wholesalers who sell CFC and HCFC re- frigerants must retain invoices that indicate the name of the purchaser, the date of sale, and the quantity of refrigerant purchased. Reclaimers must maintain records of the names and addresses of persons sending them material for reclamation and the quan- tity of material sent to them for reclamation. This information must be maintained on a transactional basis. Within 30 days of the end of the calendar year, reclaimers must report to EPA the total quantity of material sent to them that year for reclamation, the mass of refrigerant reclaimed that year, and the mass of waste products generated that year. Hazardous Waste Disposal If refrigerants are recycled or reclaimed, they are not considered hazardous under federal law. In addition, used oils contami- nated with CFCs are not hazardous on the condition that: Used oils that contain CFCs after the CFC reclamation procedure, however, are subject to specification limits for used oil fuels if these oils are destined for burning. Enforcement EPA is performing random inspections, responding to tips, and pursuing potential cases against violators. Planning and Acting for the Future Observing the refrigerant recycling regulations for Section is essential in order to conserve existing stocks of refriger- ants, as well as to comply with Clean Air Act requirements. However, owners of equipment that contains CFC refrigerants should look beyond the immediate need to maintain existing equipment in working order. EPA urges equipment owners to act now and prepare for the phaseout of CFC production and import, scheduled for January 1, Owners are advised to begin planning for conversion or replace- ment of existing equipment with equipment that uses alternative refrigerants. To assist owners, suppliers, technicians and others involved in comfort chiller and commercial refrigeration management, EPA has published a series of short fact sheets and expects to produce additional material. For Further Information For further information concerning regu- lations related to stratospheric ozone protec- tion, please call the Stratospheric Ozone Information Hotline: The Hotline is open between EPA interprets this definition to include all air-conditioning and refrigeration equipment except that designed and used exclusively for military purposes. Maintenance, service, or repair that involves removal of the appliance compressor, condenser, evaporator, or auxiliary heat exchanger coil. This definition excludes appliances using HCFC Any service, maintenance, or repair on an appliance that would release class I or class II refrigerant from the appliance to the atmosphere unless the,refrigerant were recovered previously from the appliance. Connecting and disconnecting hoses and gauges to and from the appliance to measure pressures within the appliance and to add refrigerant to or recover refrigerant from the appliance shall not be considered "opening. To remove refrigerant in any condition from an appliance and store it in an external container without necessarily testing or processing it in any way. To extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core fjlter-driers, which reduce moisture, acidity, and paniculate matter. The parts of an appliance that are normally connected to each other or are separated only by internal valves and are designed to contain refrigerant. Any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with five pounds or less of refrigerant: Technician also means any person performing disposal of appliances, except for small appliances, MVACs, and MVAC-like appliances, that could be reasonably expected to release class I or class II refrigerants from appliances into the atmosphere. See page 6 for a more detailed discussion. To certify that you have acquired equipment, please complete this form according to the instructions and mail it to the appropriate EPA

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Regional Office. Check all boxes that apply. Send comments regarding ONLY the burden.

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3: Newcombmechanical - Home

o a o a o a o PART 4: CERTIFICATION SIGNATURE 1 certify that the establishment in Part 1 has acquired the refrigerant recovery or recycling device(s) listed in Part 2, that the establishment is complying with Section regulations, and that the information given is true and correct.

These materials are found in common appliances including motor vehicle air conditioners MVACs , MVAC-like appliances, home refrigerators and room air conditioners as well as industrial appliances including boilers and chillers. The regulations affect the refrigerants themselves, the tools used to service the appliance containing the refrigerant s and the technicians performing the service. Major recordkeeping requirements exist for technicians, owners, wholesalers and reclaimers. These requirements do not apply to technicians or owners for appliances containing less than 50 pounds of charge. All owners of regulated refrigerants are responsible for prohibiting any venting of those materials into the environment while maintaining, servicing, repairing, or disposing of the refrigerant or machinery containing any of the regulated refrigerants. If the owner detects a significant leak in a machine with 50 pounds of charge or more, it must be repaired within 30 days unless the owner plans to shut down or retrofit the machine within a year. Additional time may be granted under special circumstances. A significant leak is defined as one where the rate of leaking would result in a specified percent loss in charge if the leak were to be ignored for one year. A certified technician must complete all appliance maintenance and repairs and refrigerant reclamation and disposal. This includes the addition or removal of refrigerant from an appliance, attaching or detaching hoses and gauges or any other activity that violates the integrity of the appliance. A technician must release less than 1. If an appliance requires on-site dismantling for disposal, the refrigerant must be recovered under the same regulations that apply when servicing the appliance. Special requirements exist for equipment that enters the waste stream with the charge intact MVACs, household refrigerators and freezers and room air-conditioners. The final person in the disposal chain is held responsible for ensuring that the special requirements are met for these appliances. Once a machine enters the waste stream, a technician does not need certification to remove the refrigerant. Hazardous waste requirements may apply to refrigerants or contaminated oils that are not properly recycled or reclaimed. There are four types of certifications that a technician may achieve that allow the technician to service small, high pressure, low-pressure or all three types of appliances. Technicians also control the purchase and sale of refrigerants enclosed in containers cylinders or drums or pre-charged parts. Except for minor repairs and repairs of leaky machinery, the technician must vacuum pressurize refrigerant containing equipment before opening and repairing the machinery according to Table 1. Then, the technician must evacuate and recover the refrigerant before working on the equipment. If the recovered refrigerant has not been contaminated it may be reused freely in any equipment operated under the same owner as the repaired machine. Otherwise, the refrigerant is subject to further testing. EES can help you maintain your regulated appliances to ensure compliance with these regulations. Please contact Tom Petersen at with any questions or concerns regarding your regulated equipment. More detailed information regarding refrigerant regulations. The building must be completely enclosed and structurally stable enough to withstand any environmental or physical loads it may encounter during its lifespan. The loads includes wind, rain, settlement, uplift, physical contact with the hazardous wastes, and the loads caused by daily operation including the movement of heavy machinery within the containment building. Any windows or doors must not come in contact with the hazardous waste and must form an effective barrier against dust. For liquid wastes, the primary barrier within the containment building must prevent the migration of the waste into the barrier and be equipped with a liquid collection and removal system. The secondary barrier is subject to the same requirements as the primary barrier, but must also detect any leaks in the primary barrier. The owner of a containment building is responsible for complying with the regulations above and for the containment of all hazardous waste, including dust. The owner must also retain a qualified registered professional engineer to

certify that the containment building complies with the regulations. If a condition is detected that may allow for the release of any hazardous waste, a written notice detailing the steps taken to repair the building must be provided to the Regional Administrator within 14 business days. Once all repairs are complete a professional engineer must be retained to verify that the repairs and cleanup were completed according to the plan previously submitted to the Regional Administrator. EES can help maintain and certify your containment buildings. Please contact Tom Petersen at with any questions.

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4: HVAC Troubleshooting Guide by Rex Miller (, Paperback) | eBay

Complying With The Section Refrigerant Recycling Rule complying with the requirements of the rule. zRequire the repair of substantial leaks in air-conditioning.

Leaks must be repaired when the appliance leaks at a rate that would release 15 percent or more of the charge over a year. The trigger for repair requirements is the current leak rate rather than the total quantity of refrigerant lost. For instance, owners of a commercial refrigeration system containing pounds of charge must repair leaks if they find that the system has lost 10 pounds of charge over the past month; although 10 pounds represents only 10 percent of the system charge in this case, a leak rate of 10 pounds per month would result in the release of over percent of the charge over the year. To track leak rates, owners of air-conditioning and refrigeration equipment with more than 50 pounds of charge must keep records of the quantity of refrigerant added to their equipment during servicing and maintenance procedures. This requirement is waived if, within 14 days of discovery, owners develop a one-year retrofit or retirement plan for the leaking equipment. Owners of industrial process refrigeration equipment may qualify for additional time under certain circumstances. For example, if an industrial process shutdown is required to repair a leak, owners have days to repair the leak. Owners or operators of leaky industrial process refrigeration equipment should see Section Leak Repair fact sheet http: Technicians are required to pass an EPA-approved test given by an EPA-approved certifying organization to become certified under the mandatory program. The Hotline distributes current lists of approved testing organizations. Any group on campus that performs any of the work above must have technicians who are properly certified to work on RREA. For servicing small appliances Type I ; For servicing or disposing of high or very high-pressure appliances except small appliances and MVACs Type II ; For servicing or disposing of low-pressure appliances Type III ; For servicing all types of equipment Universal ; In addition, apprentices are exempt from certification requirements provided the apprentice is closely and continually supervised by a certified technician. Attaching and detaching hoses and gauges to and from the appliance to measure pressure within the appliance; Adding refrigerant to or removing refrigerant from the appliance; Any other activity that violates the integrity of the MVAC-like appliances, and small appliances. EPA-certified technicians servicing appliances other than motor vehicle air conditioners may still buy containers of CFC larger than 20 pounds. The sales restriction covers refrigerant contained in bulk containers cylinders or drums and pre-charged parts. The restriction excludes refrigerant contained in refrigerators or air conditioners with fully assembled refrigerant circuits such as household refrigerators, window air conditioners, and packaged air conditioners , pure HFC refrigerants, and CFCs or HCFCs that are not intended for use as refrigerants. In addition, a restriction on sale of pre-charged split systems has been stayed suspended while EPA reconsiders this provision. This certification form must be filled out by the owner of the equipment, e. Note that this certification is a one-time requirement. Therefore, if a shop purchased a piece of CFC recycling equipment in the past and sent the certification to EPA, the shop does not need to send a second certification to EPA when it purchases a second piece of equipment, no matter what refrigerant that equipment is designed to handle. Although owners of recycling and recovery equipment are required to list the number of trucks or "service vehicles" based at their shops; they do not need to have a piece of recycling or recovery equipment for every truck. Outside contractors should certify their own equipment. In addition, reclaimers must release no more than 1. Reclaimers must certify to the Section Recycling Program Manager at EPA Headquarters that they are complying with these requirements and the information given is true and correct. Certification must also include the name and address of the reclaimer and a list of equipment used to reprocess and analyze the refrigerant. The voluntary program offered by ARI involves quarterly testing of random samples of reclaimed refrigerant. EPA maintains a list of approved reclaimers that is available from the Hotline. In addition, a checklist helps prospective reclaimers provide appropriate information for EPA to review. Like MVACs in cars and trucks, these air conditioners typically contain two or three pounds of CFC and use open-drive

compressors to cool the passenger compartments of vehicles. That is, technicians servicing MVAC-like appliances must "properly use" recycling or recovery equipment that has been certified to meet the MVAC standards. However, equipment that typically enters the waste stream with the charge intact e. Under these requirements, the final person in the disposal chain at UCI e. If refrigerants are recycled or reclaimed, they are not considered hazardous under federal law. In addition, used oils contaminated with CFCs are not hazardous on the condition that: They are not mixed with other waste; They are subjected to CFC recycling or reclamation; or, They are not mixed with used oils from other sources. Used oils that contain CFCs after the CFC reclamation procedure, however, are subject to specification limits for used oil fuels if these oils are destined for burning. These oils are considered as hazardous waste. The equipment used to recover refrigerant from appliances prior to their final disposal must meet the same performance standards as equipment used prior to servicing, but it does not need to be tested by a laboratory. This means that self-built equipment is allowed as long as it meets the performance requirements. For MVACs and MVAC-like appliances, the performance requirement is mm of mercury vacuum; and for small appliances, the recovery equipment performance requirements are 90 percent efficiency when the appliance compressor is operational and 80 percent efficiency when the appliance compressor is not operational. Technician certification is not required, but is recommended, for individuals removing refrigerant from small appliances in the waste stream. The safe disposal requirements went into effect on July 13, Equipment must be registered or certified with the EPA link to the sample form , or http: Wholesalers who sell CFC and HCFC refrigerants must retain invoices indicating the name of the purchaser, the date of sale, and the quantity of refrigerant purchased. Reclaimers must maintain records of the names and addresses of persons sending them material for reclamation and the quantity of material sent to them for reclamation. This information must be maintained on a transactional basis. Within 30 days of the end of the calendar year, reclaimers must report to EPA the total quantity of material sent to them that year for reclamation, the mass of refrigerant reclaimed that year, and the mass of waste products generated that year. Widespread refrigerant recycling reduces the demand for virgin ODS refrigerants and thus extends the time that they will be available. The following sections describe the requirements of the law and its potential impact on UCI. Reclamation â€" In the discussion below, recycling means the use of a machine to remove impurities and oil and then recharge the refrigerant into either the same car or a different car. Recycled refrigerant is not as pure as reclaimed refrigerant. Recycling occurs in the service shop. Reclamation means the removal of all oil and impurities beyond that provided by on-site recycling equipment, and reclaimed refrigerant is essentially identical to new, unused refrigerant. Reclamation cannot be performed in the service shop. Rather, the shop generally sends refrigerant either back to the manufacturer or directly to a reclamation facility. Approved Equipment â€" Technicians who repair or service MVACs must recover the refrigerant and either recycle it on-site, or send it off-site to a reclamation facility. Technicians must use EPA-approved equipment to perform the refrigerant recovery and recycling. However, technicians are prohibited from changing fittings on the same unit back and forth so that the unit is used for CFC in the morning, HFCa in the afternoon, then back to CFC again, etc. For refrigerant blends, see the Requirements Specific to Refrigerant Blends below. If a technician is already trained and certified to handle CFC, he does not need to be recertified to handle HFCa or refrigerant blends. If refrigerant is recovered and sent to a reclamation facility, the shop must retain the name and address of that reclaimer. One option is that a technician may permanently dedicate an older piece of equipment he owns to recovering one or more blend refrigerants. Refrigerant recovered using this kind of "junk" tank must then be shipped off-site for reclamation or destruction. Using New Equipment to Recover Blends - Another option for recovering a blend refrigerant is to use a new piece of EPA-approved equipment designed to recover, but not recycle, any single specific blend refrigerant. Recycling Blends - Recycling of refrigerant blends used in motor vehicle air conditioning systems MVACs is allowed, provided that: The only exception to item b is for fleets of vehicles with a common owner; recycled blend refrigerant may be moved among vehicles within such a fleet. In the future, the EPA may issue regulations allowing these conversions but placing certain restrictions on who performs the

conversions, what models may be converted, etc.

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5: Section of the Clean Air Act from the EPA

Note: Citations are based on reference standards. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied.

Is ozone depletion a real problem? Rather than being a literal hole through the layer, the ozone hole is a large area of the stratosphere with extremely low amounts of ozone. In addition, smaller, but still significant, stratospheric decreases have been seen at other, more populated regions of the Earth. Thus, ozone depletion is a global issue and not just a problem at the South Pole. Return to TOP Why do we care if the ozone layer depletes? Increased UV radiation heightens the incidence of human skin cancer, cataracts, and weakened human immune systems, and it also endangers the environment by threatening important crop yields, and other plant and animal life. This rise in melanoma cases and deaths in America is expected to continue. What depletes the ozone layer? The scientific evidence, accumulated over more than two decades of study by the international research community, has shown that certain human made chemicals containing chlorine and bromine, such as CFCs and Halons, are responsible for the observed depletions of the ozone layer. These ozone-depleting chemicals are very stable in the lower atmosphere. This enables them to survive long enough to reach the stratosphere, where ultraviolet radiation from the sun causes them to break apart and release chlorine and bromine atoms. These highly reactive atoms then react with ozone, starting chemical cycles of ozone destruction that deplete the ozone layer. One chlorine atom can destroy more than , ozone molecules and bromine is 40 times more effective at destroying ozone. Unfortunately, the use of ozone-depleting chemicals in our every-day lives is quite prevalent. They are used, for instance, as refrigerants, solvents, foam blowing agents, fire extinguishers, and pesticides. What can you do to protect the ozone layer? Have your car air conditioning system properly serviced. Fixing leaks in car air conditioners before more refrigerant is added helps prevent unnecessary loss of chlorofluorocarbon refrigerants and conserves supplies. Ask about retrofitting; most car air conditioners sold prior to were designed to use CFCs, but can be modified to use a non-ozone depleting refrigerant. Dispose of old appliances containing refrigerant responsibly. Chlorofluorocarbon and hydrochlorofluorocarbon refrigerant must be removed from an appliance before it is discarded. Help start a refrigerant recovery and recycling program in your area: Ensure that the refrigerant is recovered from air conditioners, refrigerators, and dehumidifiers. Refrigerant must not be "vented" during the servicing of home appliances. Used refrigerant can be recycled. What international measures are being taken to control the use of these chemicals? The Montreal Protocol on Substances that Deplete the Ozone Layer is a landmark international agreement signed by over countries that sets specific deadlines for the phaseout of production and importation of ozone depleting chemicals. It was originally signed in , and has been amended three times so far, in London in , in Copenhagen in , and recently in Montreal in Under this treaty, developed countries agreed to end production and importation of halons by the beginning of , CFCs, methyl chloroform, carbon tetrachloride, and hydrobromofluorocarbons by the beginning of , methyl bromide by the beginning of , and HCFCs by the beginning of Developing countries will stop the production and import of these ozone-depleting substances on a different, later phaseout schedule. What measures have been taken by the United States? In , Congress passed the Clean Air Act Amendments of that included additional measures to protect the ozone layer. Most importantly, the law requires a gradual end to the production of chemicals that deplete the ozone layer. The chemicals that cause the most damage will be phased out first. The phase-out schedule can be speeded up if an earlier end to production of ozone depleting substances is needed to protect the ozone layer see table below for current phase-out dates. In addition, the law also bans the release of refrigerants during the service, maintenance and disposal of air conditioning and refrigeration equipment, requires the labeling of products containing or manufactured with ozone-depleting chemicals, bans nonessential uses of ozone depleting chemicals, and establishes a program to review the health and

environmental acceptability of alternatives. Ozone Depleting Chemical When U.

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6: What Is Needed to Start a Refrigator Refrigerant Removal Business? | www.enganchecubano.com

&EPA United States Environmental Protection Agency Air and Radiation J) EPAF June Stratospheric Ozone Protection â€¢ Final Rule Summary COMPLYING WITH THE REFRIGERANT RECYCLING RULE This fact sheet provides an overview of the refrigerant recycling requirements of section of the Clean Air Act, , as amended (CAA), including final regulations published on May 14, (58 FR), and the prohibition on venting that became effective on July 1,

The Prohibition on Venting Effective July 1, , section of the Act prohibits individuals from knowingly venting ozone-depleting compounds used as refrigerants into the atmosphere while main- taining, servicing, repairing, or disposing of air-conditioning or refrigeration equipment. Only four types of releases are permitted under the prohibition: Refrigerants emitted in the course of normal operation of air-conditioning and refrigeration equipment as opposed to during the maintenance, servicing, repair, or disposal of this equipment such as from mechanical purging and leaks. However, EPA is requiring the repair of substantial leaks. However, a technician may not avoid recovering refrigerant by adding nitrogen to a charged system; before nitrogen is added, the system must be evacuated to the appropriate level in Table 1. Simi- larly, pure CFCs or HCFCs released from appliances will be presumed to be refrigerants, and their release will be considered a violation of the prohibition on venting. Small releases of refrigerant which result from purging hoses or from con- necting or disconnecting hoses to charge or service appliances will not be consid- ered violations of the prohibition on venting. However, recovery and recy- cling equipment manufactured after November 15, , must equipped with low-loss fittings. Regulatory Requirements Service Practice Requirements i 1. Beginning July 13, , technicians are required to evacuate air-conditioning and refrigeration equipment to established vacuum levels. EPA has established limited excep- tions to its evacuation requirements for 1 repairs to leaky equipment and 2 repairs that are not major and that are not followed by an evacuation of the equipment to the environment. This level cannot exceed 0 psig. If evacuation of the equipment to the environment is not to be performed when repairs are complete, and if the repair is not major, then the appliance must: Methods that require subsequent purging e. If refrigerant changes ownership, however, that refriger- ant must be reclaimed i. This provision will expire in May, , when it may be replaced an off-site recycling standard. Equipment Certification The Agency has established a certifica- tion program for recovery and recycling equipment. Recycling and recovery equipment intended for use with air-conditioning and refrigeration equipment besides small appliances must be tested under the ARI test protocol, which is included in the final rule as Appen- dix B. Recovery equipment intended for use with small appliances must be tested under either the ARI protocol or Appen- dix C of the final rule. The Agency is requiring recovery efficiency standards that vary depending on the size and type of air-conditioning or refrigeration equipment being serviced. For recovery and recycling equipment intended for use with air-condi- tioning and refrigeration equipment besides small appliances, these standards are the same as those in the second column of Table 1. Recovery equipment intended for use with small appliances must be able to recov- er 90 percent of the refrigerant in the small appliance when the small appliance compres- sor is operating and 80 percent of the refrig- erant in the small appliance when the com- pressor is not operating. Equipment Grandfathering Equipment manufactured before Novem- ber 15, , including home-made equip-ment, will be grandfathered if it meets the standards in the first column of Table 1. Third-party testing is not required for equip- ment manufactured before November 15, , but equipment manufactured on or after that date, including home-made equip- ment, must be tested by a third-party see Equipment Certification above. Refrigerant Leaks Owners of equipment with charges of greater than 50 pounds are required to repair substantial leaks. A 35 percent annual leak rate is established for the industrial process and commercial refrigeration sectors as the trigger for requiring repairs. An annual leak rate of 15 percent of charge per year is established for comfort cooling chillers and all other equipment with a charge of over 50 pounds oth-r than industrial process and commercial refrigeration equipment. Own- ers of air-conditioning and refrigeration equipment with more than 50 pounds of charge must keep records of the quantity of refrigerant added to their

equipment during servicing and maintenance procedures. The Agency has developed four types of certification: Persons removing refrigerant from small appliances and motor vehicle air condition- ers for purposes of disposal of these appli- ances do not have to be certified. Technicians are required to pass an EPA-approved test given by an EPA-ap- proved certifying organization to become certified under the mandatory program. Technicians must be certified by November 14, EPA expects to have approved some certifying organizations by September of. The Stratospheric Ozone Hotline will distribute lists of approved organizations at that time. EPA plans to "grandfather" individuals who have already participated in training and testing programs provided the testing programs 1 are approved by EPA and 2 provide additional, EPA-approved materials or testing to these individuals to ensure that they have the required level of knowledge. Although any organization may apply to become an approved certifier, EPA plans to give priority to national organizations able to reach large numbers of people. EPA encourages smaller training organizations to make arrangements with national testing organizations to administer certification examinations at the conclusion of their courses. Persons servicing appliances other than motor vehicle air conditioners may still buy containers of CFC larger than 20 pounds. Certification by Owners of Recycling and Recovery Equipment EPA is requiring that persons servicing or disposing of air-conditioning and refriger- ation equipment certify to EPA that they have acquired built, bought, or leased recovery or recycling equipment and that they are complying with the applicable re- quirements of this rule. This certification must be signed by the owner of the equip- ment or another responsible officer and sent to the appropriate EPA Regional Office by August 12, A sample form for this certification is attached. Although owners of recycling and recovery equipment are re- quired to list the number of trucks based at their shops, they do not need to have a piece of recycling or recovery equipment for every truck. Reclaimer Certification Reclaimers are required to return refrig- erant to the purity level specified in ARI Standard an industry-set purity standard and to verify this purity using the laboratory protocol set forth in the same standard. In addition, reclaimers must release no more than 1. Re- claimers must certify by August 12, , to the Section Recycling Program Man- ager at EPA headquarters that they are complying with these requirements and that the information given is true and correct. The certification must also include the name and address of the reclaimer and a list of equipment used to reprocess and to analyze the refrigerant. EPA encourages reclaimers to partici- pate in third-party reclaimer certification programs, such as that operated by the Air- Conditioning and Refrigeration Institute ARI. Like MVACs in cars and trucks, these air conditioners typically contain two or three pounds of CFC and use open-drive compressors to cool the passenger compartments of vehicles. Vehi- cle air conditioners utilizing HCFC are not included in this group and are therefore subject to the requirements outlined above for HCFC equipment. Howev- er, equipment that typically enters the waste stream with the charge intact e. Under these requirements, the final person in the disposal chain e. To certify that you have acquired equipment, please cbmplete. Check all boxes that apply. Please provide the name, address, and telephone number of the establishment where the refrigerant recovery or recycling device s is are located. Please complete one form for each location. State the number of vehicles based at this location that are used to transport technicians and equipment to and from service sites. Check the appropriate boxes for the type of work performed by technicians who are employees of the establishment. For each recovery or recycling device acquired, please list the name of the manufacturer of the device, and if applicable its model number and serial number. If more than 7 devices have been acquired, please fill out an additional form and attach it to this one. Recovery devices that are self-contained should be listed first and should be identified by checking the box in the last column on the right. Self-contained recovery equipment means refrigerant recovery or recycling equipment that is capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance. On the other hand, system-dependent recovery equipment means refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from the appliance. Type A or Type B establishments can use homemade devices manufactured before November. This form must be signed by either th. PA Alabama, Florida, Georgia. However, persons "up- stream" can remove

the refrigerant and provide documentation of its removal to the final person if this is more cost-effective. The equipment used to recover refriger- ant from appliances prior to their final disposal must meet the same "performance standards" as equipment used prior to ser- vicing, but it does not need to be tested by a laboratory. This means that self-built equipment is allowed as long as it meets the performance requirements. For MVACs and MVAC-like appliances, the performance requirement is mm of mercury vacuum and for small appliances, the recover equip- ment performance requirements are 90 percent efficiency when the appliance com- pressor is operational, and 80 percent effi- ciency when the appliance compressor is not operational. Technician certification is not required for individuals removing refrigerant from appliances in the waste stream. The safe disposal requirements are effective on July 13, The equipment must be registered or certified with the Agency by August 12, A sample form is attached. Major Recordkeeping Requirements Technicians servicing appliances that contain 50 or more pounds of refrigerant must provide the owner with an invoice that indicates the amount of refrigerant added to the appliance. Technicians must also keep a copy of their proof of certification at their place of business. Owners of appliances that contain 50 or more pounds of refrigerant must keep ser- vicing records documenting the date and type of service, as well as the quantity of refrigerant added. This information must be maintained on a transactional basis. Within 30 days of the end of the calendar year, reclaimers must report to EPA the total quantity of material sent to them that year for reclamation, the mass of refrigerant reclaimed that year, and the mass of waste products generated that year. Hazardous Waste Disposal If refrigerants are recycled or reclaimed, they are not considered hazardous under federal law. In addition, used oils contami- nated with CFCs are not hazardous on the condition that: They are not mixed with other waste. Used oils that contain CFCs after the CFC reclamation procedure, however, are subject to specification limits for used oil fuels if these oils are destined for burning. Enforcement EPA is performing random inspections, responding to tips, and pursuing potential cases against violators. Planning and Acting for the Future Observing the refrigerant recycling regulations for section is essential in order to conserve existing stocks of refriger- ants, as well as to comply with Clean Air Act requirements. However, owners of equipment that contains CFC refrigerants should look beyond the immediate need to maintain existing equipment in working order. EPA urges equipment owners to act now and prepare for the phaseout of CFCs, which will be completed by Janu- ary 1, Owners are advised to begin the process of converting or replacing ex- isting equipment with equipment that uses alternative refrigerants. To assist owners, suppliers, technicians and others involved in comfort chiller and commercial refrigeration management, EPA has published a series of short fact sheets and expects to produce additional material. For Further Information For further information concerning regulations related to stratospheric ozone protection, please call the Stratospheric Ozone Information Hotline: The Hotline is open between EPA interprets this definition to include all air-conditioning and refrigeration equipment except that designed and used exclusively fpr military purposes. Maintenance, service, or repair that involves removal of the appliance compressor, condenser, evaporator, or auxiliary heat exchanger coil. This definition excludes appliances using HCFC To reprocess refrigerant to at least the purity specified in the ARI Standard , Specifications for Fluorocarbon Refrigerants, and to verify this purity using the analytical methodology prescribed in the Standard. To remove refrigerant in any condition from an appliance and store it in an external container without necessarily testing or processing it in any way. To extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. Recovery or recycling equipment that is capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance. Any person who performs maintenance, service, or repair that could reasonably be expected to release class I CFC or class II HCFC substances into the atmosphere, including but not limited to installers, contractor employees, in-house service personnel, and in some cases, owners. Technician also means any person disposing of appliances except for small appliances.

COMPLYING WITH THE SECTION 608 REFRIGERANT RECYCLING RULE pdf

7: Ozone Depleting Substances | Environmental Health & Safety | UCI

U.S. EPA Clean Air Act, Title VI, Section , Compliance with the Section Refrigerant Recycling Rule Regulations on using and recycling ozone depleting compounds United States Code of Federal Regulations, 40 CFR, Parts , and Part 22, Definition of Wetlands.

More Resources Who is covered by the regulations? Clean Air Act CAA regulations apply to all transportation operations that own or service air conditioning and refrigeration equipment. This includes both stationary sources HVAC systems and refrigerated storage areas in buildings and mobile sources refrigeration units in vehicles. What is the purpose of the regulations? Emissions of certain synthetic chemicals - including chlorofluorocarbons CFCs , halons, and hydrochlorofluorocarbons HCFCs - that are commonly used as refrigerants, solvents, and insulating foams destroy the ozone layer and have created an "ozone hole" over the South Pole. In addition, many of these ozone-depleting substances ODS , as well as their substitutes, are greenhouse gases that contribute to climate change. Due to the global nature of the problem, in many countries, including the U. Since , all United Nations UN countries have signed the treaty and it has undergone many revisions. Regulations Various sections of CAA Title VI impact the transportation industry in terms of operating and servicing existing air conditioning or refrigeration equipment. Businesses should also be aware of these rules when purchasing new equipment. Key issues are discussed below. EPA regulations issued under Sections of the Clean Air Act phase out the production and import of ozone-depleting substances ODS , consistent with the schedules developed under the Montreal Protocol. The parties to the Montreal Protocol have changed the phaseout schedule over time, through adjustments and amendments, and EPA has also accelerated the phaseout under its Clean Air Act authority. This will significantly increase the cost of operating older units. Class I substances have a higher ozone-depleting potential namely CFCs and have been completely phased out in the U. Class I substances were subject to the first round of U. Class I substances have an ozone depletion potential ODP of 0. HCFCs were developed as transitional substitutes for Class I substances and are subject to a later phaseout schedule than Class I substances. Although there are currently 34 controlled HCFCs, only a few are commonly used. For more information on ODC phaseout, see: The purpose of sections and of the Clean Air Act CAA are to minimize the quantity of refrigerants released to the atmosphere, and to maximize the recovery and recycling of refrigerants during the servicing and disposal of mobile and stationary air conditioning and refrigeration equipment. Technician certification Mandatory use of recovery and recycling equipment Service practices that minimize refrigerant emissions Prohibition of venting,.

8: HVAC Troubleshooting Guide

Resources for HVACR contractors, technicians, equipment owners and other regulated industry to check rules and requirements for managing refrigerant emissions, information on how to become a certified technician, and compliance assistance documents.

9: Compliance | Region 2 | US EPA

A copy of the EPA document, "Complying with the Section Refrigerant Recycling Rule," is available from the EPA (www.enganchecubano.com) or the Division of Facilities Planning and Development.

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