

EPA SECTION 608 EXAM CRAM GUIDE

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Built only from EPA.gov Section 608 test-topic and regulatory pages.

Condensed review of EPA-published certification topics. EPA does not provide or approve this guide, and its public outline is not a complete exam question bank. Study gaps are marked where the cited EPA material names a topic without supplying the answer. Use the separate AIM note for current HFC leak rules.

Before You Take the Test

- Know which sections you're taking: Core, Type I, Type II, and Type III. Universal requires all four, with a proctored Core exam.
- Read the whole question and every answer before choosing.
- Watch for NOT, EXCEPT, FIRST, and MUST.
- Check the equipment type, refrigerant, dates, and units.
- Understand why an answer is correct. Don't memorize only its wording.
- Know the difference between recovery, recycling, and reclaiming.
- Check your testing provider's instructions, passing score, and rules about study materials before test day.

PART 1 — CORE: ENVIRONMENT, LAW & SECTION 608

CORE — ENVIRONMENTAL IMPACTS

- Stratospheric ozone protects life from harmful ultraviolet (UV) radiation.
- CFCs contain chlorine. UV breaks CFCs apart in the stratosphere and releases chlorine atoms that destroy ozone.
- HCFCs also contain chlorine and deplete ozone, but generally have lower ozone-depletion potential (ODP) than CFCs.
- HFCs contain no chlorine or bromine. EPA states HFCs have zero ODP; some HFCs have high global-warming potentials.
- EPA examples: R-12 = CFC; R-22 = HCFC; R-134a = HFC.
- ODP family pattern: CFCs generally higher than HCFCs; HFCs = zero ODP.
- Ozone depletion increases UV reaching Earth. EPA links increased UV to skin cancer, cataracts, and harm to plants, crops, marine ecosystems and materials.
- Evidence of ozone depletion and the role of CFCs/HCFCs are Core test topics.

CORE — CLEAN AIR ACT & MONTREAL PROTOCOL

- Montreal Protocol = international agreement controlling the phaseout of ozone-depleting substances.
- U.S. production/import of most Class I ODS, including CFCs, ended January 1, 1996, subject to exemptions.
- U.S. production/import of HCFC-22 (R-22) ended January 1, 2020. Existing R-22 equipment may still be serviced with recovered/reclaimed or previously produced R-22.
- Venting prohibition applies during servicing and disposal.
- EPA prohibits intentional venting of ODS refrigerants and their non-exempt substitutes while maintaining, servicing, repairing or disposing of A/C and refrigeration equipment.
- Permitted releases include de minimis releases associated with good-faith recovery, normal-operation releases, and specific substitutes EPA has exempted.
- "Maximum penalty under the Clean Air Act" is an EPA-listed test topic. Civil penalty amounts are inflation-adjusted, so older study-guide dollar amounts should not be treated as permanently current.

CORE — SECTION 608 REGULATIONS

- Section 608 certification is required for covered maintenance, service and repair that could release refrigerant. Disposal also requires certification, except for small appliances, MVACs and MVAC-like appliances; refrigerant-recovery obligations still apply. [Certification FAQ]
- Credentials do not expire. Tests must be administered by an EPA-approved certifying organization.
- Type I = small appliances. Type II = high/very-high-pressure appliances except small appliances and MVACs. Type III = low-pressure appliances. Universal = all three.
- Core must be proctored for Universal. An open-book Core cannot be used for Universal.
- Technician activities include attaching/detaching hoses or gauges, adding/removing refrigerant, and other work that violates appliance integrity.
- Registered apprentices may work uncertified with close, continual supervision by a technician holding the appropriate certification. EPA limits apprentice status to two years from first registration with the recognized apprenticeship office. [Certification FAQ]
- Know high-pressure versus low-pressure refrigerant/appliance categories.
- System-dependent (passive) recovery relies on appliance pressure and/or its compressor. Self-contained recovery equipment has its own means to remove refrigerant.

- Recovery/recycling equipment is subject to third-party certification requirements.
- Reclaimed refrigerant standard listed by EPA test topics: AHRI Standard 700-2016.
- Refrigerant sales restrictions apply; stationary refrigerant purchasers generally must be Section 608 certified or qualify under an EPA-authorized purchasing condition.
- Recovered refrigerant may be returned to the same system or another system owned by the same person without reclamation.

CORE — THREE R's

- RECOVER = remove refrigerant and store it without necessarily testing or processing it.
- RECYCLE = extract refrigerant and clean it for reuse, commonly through oil separation and filtering.
- RECLAIM = process used refrigerant to specified purity and verify it to the applicable standard; reclamation for resale/change of ownership is performed by an EPA-certified reclaimer.

CORE — SUBSTITUTE REFRIGERANTS & OILS

- There are no true “drop-in” replacements. A substitute must be compatible with the equipment and lubricant and acceptable for the use.
- Lubricants and refrigerants must be compatible. EPA test topics give ester lubricants with R-134a and alkylbenzene lubricants with HCFCs as examples.
- Blended refrigerants can fractionate: components can leak at different rates, changing blend composition.
- EPA's Type II test topics state hydrocarbons are not approved for retrofits.

PART 2 — CORE: REFRIGERATION, RECOVERY & SAFETY

CORE — BASIC REFRIGERATION

- Know whether refrigerant is liquid or vapor and the relative pressure at different points in the refrigeration cycle.
- Compressor: takes low-pressure vapor and raises its pressure.
- Condenser: refrigerant rejects heat and condenses toward liquid on the high side.
- Metering device: creates the pressure drop feeding the low side.
- Evaporator: refrigerant absorbs heat and boils/evaporates; cooling occurs as refrigerant absorbs heat.
- Study gap: gauge use, ranges and color codes are EPA-listed topics; the cited EPA outline does not give those details. Do not treat this bullet as a complete study answer.
- Leak-location methods include bubble tests, ultrasonic tests, gas-imaging cameras and appropriate leak detectors. A pressure/vacuum decay test alone indicates leakage but does not locate it. [Certification FAQ]
- Pressure and temperature together can help identify refrigerant and reveal non-condensables.

CORE — RECOVERY TECHNIQUES

- Never mix different refrigerants in the same recovery cylinder.
- Recovery speed depends on ambient temperature, recovery-machine size/capacity, hose length and diameter, restrictions and pressure difference.
- Recovering liquid first, when practical, speeds recovery.
- Shorter, larger-diameter hoses and fewer restrictions generally speed recovery.
- Cooling the recovery vessel or safely warming the appliance/vessel being recovered can increase transfer rate.
- When changing the refrigerant handled by recovery/recycling equipment, reduce cross-contamination and emissions by following equipment procedures and clearing/dedicating equipment as appropriate.
- After reaching the required recovery vacuum, wait a few minutes. A pressure rise can indicate liquid refrigerant remains in the system or refrigerant remains in oil.

CORE — DEHYDRATION / EVACUATION

- After service, evacuate the refrigeration system to remove air and moisture.
- 0 psig is atmospheric gauge pressure; it is not a vacuum.
- Do not intentionally purge refrigerant to the atmosphere to remove air/non-condensables.

CORE — SAFETY

- Refrigerant exposure risks listed by EPA include oxygen deprivation, cardiac effects, frostbite and long-term hazards.
- PPE listed by EPA includes gloves and goggles; SCBA may be required in extreme situations.
- Refrigerant vapor can displace oxygen. Use appropriate ventilation.
- High heat can decompose refrigerants into dangerous products.
- Reusable/recovery cylinders must be DOT-approved as applicable. EPA's test topics identify the traditional recovery-cylinder yellow/gray color code.

- Disposable cylinders must never be refilled.
- Never fill a recovery cylinder more than 80% full. Use a scale.
- Never heat a cylinder with an open flame or exceed its pressure rating.
- Use nitrogen rather than oxygen or compressed air for leak testing where appropriate.
- Use a pressure regulator and relief valve with nitrogen. Never exceed component/system test pressure.
- Never use oxygen or compressed air in a refrigeration system where refrigerant/oil may create a combustible or explosive mixture.

CORE — SHIPPING

- EPA test topic: refrigerant cylinders being shipped require refrigerant identification and the applicable DOT classification/tag/label.
- Follow DOT cylinder and transportation requirements.

CORE — FAST MEMORY

CFC → chlorine → ozone depletion

HCFC → chlorine, lower ODP than CFC

HFC → zero ODP

CFC production/import phaseout date → 1/1/1996

R-22 production/import ended → 1/1/2020

Never intentionally vent

Never mix refrigerants

Never refill a disposable cylinder

Recovery cylinder ≤80%

Nitrogen with regulator/relief valve

Evacuate to remove air/moisture

PART 3 — TYPE I: SMALL APPLIANCES

TYPE I — DEFINITION & SCOPE

- Small appliance = factory-manufactured, charged and hermetically sealed appliance containing 5 pounds or less of refrigerant.
- Examples commonly covered by EPA include household refrigerators/freezers, room/window A/C and similar factory-sealed appliances.
- Type I certification covers servicing small appliances.

TYPE I — REQUIRED RECOVERY

EPA service-practice requirements:

- Using recovery/recycling equipment manufactured BEFORE November 15, 1993: recover 80% of the refrigerant, whether or not the compressor works.
- Using equipment manufactured ON OR AFTER November 15, 1993 AND compressor is functional: recover 90%.
- Using equipment manufactured ON OR AFTER November 15, 1993 AND compressor is not functional: recover 80%.
- Alternative: evacuate the small appliance to 4 inches of mercury vacuum.
- Use recovery equipment according to the manufacturer's directions.

TYPE I — SYSTEM-DEPENDENT / PASSIVE RECOVERY

- EPA test topics cover recovery from small appliances using system-dependent/passive equipment.
- With an inoperative compressor: EPA lists heating and sharply striking the compressor as methods that can help release trapped refrigerant.
- A vacuum pump may be used with a non-pressurized recovery container in the passive-recovery context described by EPA.
- With an inoperative compressor, install/access both the high and low sides to improve recovery.
- With an operative compressor and passive recovery, operate the appliance compressor during recovery.
- Solderless/piercing access fittings should be removed at the conclusion of service; they are not intended as permanent service fittings.

TYPE I — IDENTIFYING REFRIGERANT / NON-CONDENSABLES

- EPA lists use of pressure and temperature to identify refrigerants and detect non-condensables.
- Compare stabilized pressure/temperature behavior with the expected refrigerant relationship. Abnormal pressure for the measured temperature can indicate contamination/non-condensables.

TYPE I — REFRIGERANT SUBSTITUTION

- EPA's Type I test topics identify HFC-134a (R-134a) as a likely substitute for CFC-12 (R-12).

- A substitute is not automatically a drop-in; compatibility with the appliance and lubricant matters.

TYPE I — SAFETY

- EPA specifically lists decomposition products of refrigerants at high temperatures as a Type I safety topic.
- Avoid flames/high heat around refrigerants and follow refrigerant/equipment safety procedures.

TYPE I — SAFE DISPOSAL

- Final disposers of small appliances, MVACs and MVAC-like appliances must ensure refrigerant has been recovered before final disposal and maintain required verification/documentation.
- Equipment normally dismantled on-site must have refrigerant recovered according to service-practice requirements before disposal.

TYPE I — NUMBERS

5 lb or less

80% with pre-11/15/1993 equipment

90% with post-11/15/1993 equipment + working compressor

80% with post-11/15/1993 equipment + failed compressor

4 in. Hg vacuum alternative

PART 4 — TYPE II: HIGH / VERY-HIGH PRESSURE

TYPE II — LEAK DETECTION

- Signs of leakage in high-pressure systems listed by EPA include excessive superheat and traces of oil for hermetic systems.
- Leak test before charging or recharging equipment.
- EPA's listed preference: nitrogen alone is best; nitrogen with a trace quantity of R-22 is preferable to using pure refrigerant as a leak-test gas.
- Follow current venting rules and approved practices when using any trace refrigerant.

TYPE II — RECOVERY TECHNIQUES

- Recover liquid first when practical to speed recovery.
- Speed recovery by chilling the recovery vessel or safely heating the appliance/vessel being recovered.
- Reduce cross-contamination and emissions when using a recovery/recycling machine with a new refrigerant.
- After reaching the required vacuum, wait a few minutes. Rising pressure can indicate refrigerant remains as liquid or in oil.

TYPE II — REQUIRED EVACUATION LEVELS

Inches Hg vacuum relative to standard atmospheric pressure of 29.9 in. Hg:

- Very-high-pressure appliance: pre-1993 equipment = 0 | post-1993 equipment = 0
- High-pressure appliance/component, full charge <200 lb: pre = 0 | post = 0
- High-pressure appliance/component, full charge ≥200 lb: pre = 4 | post = 10
- Medium-pressure appliance/component, full charge <200 lb: pre = 4 | post = 10
- Medium-pressure appliance/component, full charge ≥200 lb: pre = 4 | post = 15
- Low-pressure appliance: 25 mm Hg absolute for both pre- and post-1993 recovery equipment.

TYPE II — RECOVERY REQUIREMENT DECISIONS

EPA says know evacuation requirements for:

- Disposal.
- Major versus non-major repair.
- Leaky versus non-leaky appliance.
- Less than versus 200 lb or more full charge.
- Recovery/recycling equipment built before versus after November 15, 1993.
- Major repair includes removal of the compressor, condenser, evaporator or auxiliary heat-exchanger coil.
- EPA test topic: system-dependent recovery equipment may not be used on appliances containing more than 15 pounds of refrigerant.

EVACUATION EXCEPTIONS

- If leaks prevent the specified evacuation or would substantially contaminate recovered refrigerant: isolate leaking from non-leaking components where possible; evacuate non-leaking components to the required level; evacuate leaking components to the lowest attainable level without substantial contamination, not above 0 psig.

- For a repair that is not major and is not followed by evacuation of the appliance to the environment, high/very-high-pressure equipment must be evacuated to 0 psig before opening.
- For the comparable low-pressure situation, pressurize to 0 psig before opening; methods requiring subsequent purging, such as nitrogen, cannot be used except with R-113 appliances.

TYPE II — REFRIGERATION

- Know how to identify refrigerant in an appliance.
- Know pressure-temperature relationships of common high-pressure refrigerants.
- Conversion reminder specifically listed by EPA: psia = psig + 14.7 at standard atmospheric pressure.
- Study gap: EPA lists receiver, evaporator and accumulator locations and refrigerant states. The cited outline does not supply all component-state answers; this guide has not established them from EPA sources.
- EPA test topic: hydrocarbons are not approved for retrofits.

TYPE II — SAFETY

- Do not energize a hermetic compressor while it is under vacuum.
- EPA test topics include ASHRAE Standard 15 equipment-room requirements, including an oxygen-deprivation sensor with all refrigerants.

PART 5 — TYPE III: LOW-PRESSURE APPLIANCES

TYPE III — LOW-PRESSURE BASICS

- Low-pressure appliances can operate below atmospheric pressure. Leaks may pull air and moisture INTO the system.
- A purge unit removes air/non-condensables from low-pressure systems.
- Excessive purging is a sign of leakage into the system.
- Know pressure-temperature relationships of low-pressure refrigerants.

TYPE III — LEAK DETECTION / PRESSURIZATION

EPA's order of preference for leak-test pressurization:

1. Hot water or a built-in system heating/pressurization device such as Prevac.
 2. Nitrogen.
- Study gap: EPA lists maximum centrifugal-chiller leak-test pressure but does not state the number in its topic outline. An EPA-sourced value is still needed here; never exceed the appliance/manufacture's allowable test pressure.
 - EPA test topics include leak-inspection requirements for appliances exceeding the applicable leak rate and reporting for chronically leaking appliances.

TYPE III — RECOVERY TECHNIQUES

- Recover liquid at the beginning when practical to speed recovery.
- Recover vapor as well as liquid.
- Heat oil to 130°F before removing it when required to minimize refrigerant release.
- Circulate or remove water from the chiller during evacuation to prevent tube water from freezing.
- Study gap: EPA lists the recovery-device high-pressure cutout setting for low-pressure appliances but does not give a value in the topic outline. No unverified setting is supplied here.
- After reaching the required recovery vacuum, wait a few minutes and watch for pressure rise from refrigerant remaining in liquid or oil.

TYPE III — RECHARGING

- Introduce vapor before liquid to reduce the risk of freezing water in the tubes.
- Charge centrifugal chillers through the evaporator charging valve.

TYPE III — RECOVERY REQUIREMENTS

- Required evacuation for low-pressure appliances: 25 mm Hg absolute using either pre-1993 or post-1993 recovery/recycling equipment. EPA says know requirements for:
 - Disposal.
 - Major versus non-major repairs.
 - Leaky versus non-leaky appliances.
 - Appliance/component less than versus 200 lb or more.
 - Recovery equipment built before versus after November 15, 1993.

- Definitions of major and non-major repair.
- For a non-major repair, allowable pressurization methods include controlled hot water and a system heating/pressurization device such as Prevac.
- If the appliance is not evacuated to the environment after a non-major repair, pressurize a low-pressure appliance to 0 psig before opening. Methods requiring later purging, such as nitrogen, cannot be used except with R-113.

TYPE III — SAFETY / EQUIPMENT ROOM

- EPA test topics include ASHRAE Standard 15 equipment-room requirements.
- EPA specifically lists an oxygen-deprivation sensor with all refrigerants.
- EPA test topics also list a refrigerant sensor for R-123.

PART 6 — CURRENT LEAK RULES + LAST-MINUTE REVIEW

SECTION 608 LEAK-REPAIR REQUIREMENTS

- Current Section 608 leak-repair requirements apply when an appliance has a full charge of 50 pounds or more of ozone-depleting refrigerant and exceeds the applicable annual leak trigger.
- Trigger rates:
 - 10% = comfort cooling
 - 20% = commercial refrigeration
 - 30% = industrial process refrigeration
- Required leak inspections, initial verification tests, and follow-up verification tests apply to covered 50+ lb ODS appliances that exceed the trigger rate.
- Follow-up verification: within 10 days of a successful initial verification test, or within 10 days of return to normal operating conditions if the appliance/component was evacuated for repair. Where normal-condition testing is unsafe or impossible, test beforehand where practicable. [EPA leak-rule comparison]
- Repair deadline: generally 30 days after discovery of an above-trigger leak; 120 days when an industrial process shutdown is required. Alternatively, develop a retrofit/retirement plan within 30 days and complete it within one year. [Section 608 leak repair]
- Extensions can apply for unavailable parts, conflicting legal requirements or qualifying federally owned equipment; conditions and reporting apply. [Section 608 leak repair]
- Technicians servicing appliances normally containing 50+ lb of ODS refrigerant must provide documentation showing the amount of refrigerant added.
- Required leak-inspection documentation includes the inspection date, method(s), locations of identified leaks, and certification that visible and accessible portions were inspected.
- Chronic leaks: for a covered 50+ lb ODS appliance leaking 125% or more of its full charge in a calendar year, report to EPA by March 1 of the next year. [Recordkeeping]
- Effective April 10, 2020, the Section 608 leak-repair provisions at 40 CFR 82.157 no longer apply to appliances containing only substitute refrigerants such as HFCs. Other Section 608 handling, recovery, evacuation, certification and disposal requirements still apply as specified by EPA.

AIM ACT HFC RULES — SEPARATE CURRENT-REGULATIONS NOTE

Since Jan 1, 2026 separate AIM Act leak-repair rules cover certain appliances with 15 lb or more of refrigerant containing an HFC or an HFC substitute with GWP above 53. These are separate from Section 608's 50-lb ODS rules.

Residential/light-commercial air conditioning and heat pumps are excluded. Chillers and certain VRF equipment are separate subsectors and are not automatically exempt. Substitutes with GWP 53 or below are outside these AIM leak-repair provisions.

For covered appliances, trigger rates are 30% industrial process refrigeration, 20% commercial refrigeration, and 10% comfort cooling/other covered appliances. This current-law note is not a claim that AIM questions appear on a Section 608 certification exam. [HFC rules FAQ]

SAFE DISPOSAL

- Final disposers of small appliances, MVACs and MVAC-like appliances must ensure refrigerant has been recovered and maintain the required verification/documentation.
- Refrigerants must be recovered according to applicable service-practice requirements before covered stationary A/C or refrigeration equipment is opened or disposed of.

LAST-MINUTE NUMBERS

- 5 lb or less = small appliance

- 15 lb = passive/system-dependent recovery limit topic for Type II
- 80% = pre-11/15/1993 small-appliance recovery; also failed-compressor recovery with post-1993 equipment
- 90% = post-11/15/1993 equipment + working compressor
- 4 in. Hg vacuum = small-appliance alternative
- November 15, 1993 = key recovery-equipment date
- 200 lb = evacuation-table charge breakpoint
- 0 / 4 / 10 / 15 in. Hg = key high/medium-pressure evacuation values
- 25 mm Hg absolute = low-pressure evacuation
- 130°F = oil-heating topic for low-pressure appliances
- 50 lb ODS = Section 608 leak-repair charge threshold
- 10% / 20% / 30% = comfort cooling / commercial refrigeration / industrial process refrigeration leak triggers
- psia = psig + 14.7 at standard atmospheric pressure

LAST-MINUTE EXAM TRAPS

- 0 psig is not a vacuum.
- Do not confuse inches Hg vacuum with mm Hg absolute.
- Do not intentionally vent regulated refrigerant.
- Do not mix refrigerants.
- Do not refill disposable cylinders.
- Do not use oxygen or compressed air for refrigeration pressure testing where refrigerant/oil may be present.
- Do not energize a hermetic compressor while it is under vacuum.
- Read appliance type, refrigerant type, full charge, recovery-equipment date and compressor condition before choosing a recovery/evacuation answer.
- Recovery = remove/store.
- Recycling = clean for reuse.
- Reclamation = processing to required purity by an EPA-certified reclaimer.
- Low-pressure systems may leak inward rather than outward.
- Type I recovery percentage changes with equipment date and compressor operation.
- Type II evacuation depends on appliance pressure category, full charge and recovery-equipment date.
- Type III uses 25 mm Hg absolute — not inches Hg vacuum.

SOURCE SCOPE

EPA.gov sources are linked by subject: [Test topics] · [Certification requirements] · [Certification FAQ] · [Service practices] · [Section 608 leak repair] · [Recordkeeping] · [EPA leak-rule comparison] · [HFC rules FAQ].

Source caution: EPA's technician FAQ still shows a 30-day follow-up test period; this guide uses the 10-day rule in EPA's newer leak-rule comparison and Section 608 rule text.

Study aid only. EPA does not review or approve this document. The public topic outline does not establish complete exam coverage, and study gaps above remain open.