



NATIONAL REFRIGERANTS, INC.

REFRIGERANT RECLAMATION PARTICIPATING INSTRUCTIONS

- Obtain a Recovered Refrigerant tag/label and container(s) from either your local distributor or NRI.
- Fill out a Recovered Refrigerant tag for each recovery cylinder and a Recovered Refrigerant label for each drum. The Recovered Refrigerant Bill of Lading number must be written on each label/tag and the appropriate panel on the **EZ ONE-SHOT™** disposable recovery cylinder.
- Fill the containers according to NRI Filling Instructions.
- All material must meet NRI Recovered Refrigerant Acceptance Specifications (Acceptance Specifications). Please see Terms and Conditions for additional information.
- Ship your properly filled and tagged containers to an authorized NRI Distributor or to:

National Refrigerants, Inc.
661 Kenyon Avenue
Rosenhayn, NJ 08352

Any and all risk of loss associated with the refrigerants and materials tendered by customer remains with the customer until such refrigerants and materials are tested, verified and accepted by NRI as provided herein.

TERMS AND CONDITIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

RECOVERED REFRIGERANT ACCEPTANCE SPECIFICATIONS

1. Only Fluorocarbon refrigerants from refrigeration and air conditioning systems are acceptable. Halons will not be accepted. Fluorocarbons from other applications, such as solvents or electrical transformers are NOT acceptable.
2. Non-fluorocarbon refrigerants, such as ammonia, propane, ethane, sulfur dioxide, lithium bromide, etc., are NOT acceptable. Also, fluorocarbon refrigerants contaminated with hydrocarbons in excess of 0.5% by weight (total hydrocarbons) will not be accepted.
3. Only one type of refrigerant per container is acceptable. Refrigerant must be shipped in DOT-approved recovery containers. Refer to AHRI Guideline K.
4. Containers must not exceed Maximum Allowable Gross weight as specified in NRI's Cylinder Weight Chart. Customer must comply with DOT regulations regarding the filling and shipping of containers (49CFR).

5. Refrigerant contaminants are acceptable with the following limits:

Purity	99% minimum for all CFCs, HCFCs and HFCs
Component / Ratios Composition	must be within AHRI 700 specifications for allowable composition (weight). Composition must be within ASHRAE classification of toxicity and flammability.
Oil	not to exceed 20 % by weight in R11, R113 & R123 not to exceed 10% by weight in all others.
Water.....	not to exceed saturation point of refrigerant
Acid	pH must be greater than 2.0 and less than 12.0
Dyes	not to exceed 1% by weight
Hydrocarbons	not to exceed 0.5% by weight

SAFETY RECOMMENDATIONS

1. Only fill cylinders that are currently DOT approved for fluorocarbon refrigerants. Always inspect the cylinder for proper pressure rating and latest hydrostatic test date. Be sure to thoroughly check each cylinder and drum for dents, gouges, bulges, cuts or other imperfections, which may render it unsafe to hold refrigerant for storage or transportation.
2. It is highly recommended to read the Air Conditioning and Refrigeration Institute "Guideline K--Guideline for Containers for Recovered Fluorocarbon Refrigerants."
3. Be sure all connections are made tight before transferring refrigerant into containers. Be sure all closures are made tight on the container immediately after filling. Be sure to replace valve outlet caps on cylinders.
4. Always use a scale when filling any cylinder. DO NOT OVERFILL.
5. **Caution:** Liquid refrigerant can cause frostbite if skin contact occurs. Be aware that the refrigerant/oil being removed from a system may contain contaminants, which may be harmful to breathe. Avoid contact with skin. Always provide fresh air when working in enclosed areas. Avoid breathing vapors. Always wear safety glasses and gloves (cold resistant for pressurized refrigerants and rubber-type for R11, R113 or R123). Avoid contact with clothing.



FILLING PROCEDURES

1. Visually inspect the container to be filled. Use vacuum pump to pull cylinder into full vacuum. Strictly follow all DOT requirements for inspection of refrigerant containers. For all cylinders, leak test by a vacuum gauge. NRI is not responsible for refrigerant recovered into a leaking cylinder.
 2. Place the container on a scale. Note empty weight of container to determine Maximum Gross Weight.
 3. Open container outlets and begin the transfer process following manufacturer's instructions for the recovery unit. **DO NOT LEAVE THE CONTAINER UNATTENDED.** Watch the scale closely. **DO NOT OVERFILL.** Do not exceed the gross weight limit. Do not fill more than 80% by volume. It is illegal to transport an overfilled cylinder.
 4. When the scale reaches the gross weight limit—stop the transfer process. Tightly close all valves and other outlets.
 6. Disconnect the transfer hose. **AVOID CONTACT WITH LIQUID REFRIGERANT / OIL MIXTURES.** Immediately replace all valve outlet caps and other container closures. Weigh the container. Write the weight on all appropriate forms and on the container tag or label.
 7. Completely fill out the container tag or label. Be sure the tag or label indicates the correct refrigerant in the container. It is illegal to transport a container without correctly identifying the contents (Including empty cylinders).
 8. There will be a cylinder cleaning charge for cylinders returned less than 50% full. Check off the "For Cleaning Only" box on the hangtag.
 9. NRI recommends the use of the EZ ONE-SHOT™ disposable recovery cylinder when the recovered refrigerant will be returned to a system without processing.
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GUIDELINES FOR MAXIMUM SHIPPING/FILL WEIGHTS FOR RECOVERED REFRIGERANT CYLINDERS

Cylinder Size	30 lb.	One Shot 30 lb.	40 lb.	50 lb.	125 lb.	1/2 ton	1 ton
Water Capacity	26.2 lbs	29.7 lbs	38.1 lbs	47.7 lbs	123 lbs	1000 lbs	1600 lbs

Maximum Refrigerant Weight Allowed

R12	*	24	28	36	45	117	952	1523
R22	*	22	25	32	40	103	839	1342
R500	*	21	25	31	39	102	836	1337
R502	*	22	25	32	40	103	842	1347
R134a	*	22	25	32	41	106	864	1382
R401A & B	*	22	24	32	40	105	857	1370
R402A	***	21	24	31	39	99	809	1294
R402B	**	21	24	30	38	97	792	1267
R404A	**	18	20	26	33	85	688	1100
R407A	**	21	24	31	39	99	808	1292
R407C	**	20	23	30	38	97	790	1264
R408A	**	19	22	28	35	90	735	1176
R409A	*	23	26	34	42	109	888	1420
R410A	****	19	22	28	35	89	726	1162
R416A	*	25	29	37	46	120	979	1566
R417A	*	20	22	29	36	94	770	1231
R422A	***	18	21	27	34	88	723	1157
R422D	***	20	23	29	37	95	777	1243
R507	***	18	20	26	33	85	688	1100

Minimum cylinder service pressure required (psig) for each different refrigerant is indicated above by *
 260 psig = * 300 psig = ** 350 psig = *** 400 psig = ****

Low Pressure Containers	Drum Size	Max Allowable Refrigerant Weight	Average Drum Tare Weight	Maximum Gross Shipping Weight
R11, R113, R123	100 lbs.	90 lbs.	10 lbs.	100 lbs.
	200 lbs.	180 lbs.	20 lbs.	200 lbs.
	650 lbs.	585 lbs.	65 lbs.	650 lbs.

Very High Pressure Cylinders	RC9 avg tw 20		RC23 avg tw 30		RC80 avg tw 140	
	Recovered Refrigerant Weight + Tare Weight of Cylinder = Maximum Gross Shipping Weight					
	Ref Wt / Ship Wt		Ref Wt / Ship Wt		Ref Wt / Ship Wt	
R13	14	34	19	49	74	211
R23	11	31	15	45	58	198
R503	12	32	16	46	64	206
R508B	12	32	17	47	65	205
R13B1	17	37	22	52	89	229

IMPORTANT: The tare weights listed in this guideline are only average weights. In order to determine actual gross shipping weight, the tare weight of each individual cylinder must be used.