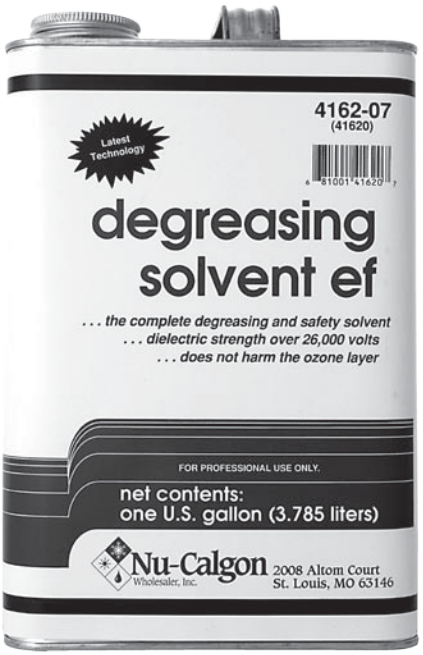
Nu-Calgon Service Tips

3-244

Clean-up of refrigeration systems

Refrigeration systems can be easily cleaned after burn-outs or at startup... Effectively, quickly and economically... By flushing Nu-Calgon's Degreasing Solvent ef through the system.

At the start-up of new installations or after burnouts, it is a good idea to clean the system prior to going to full service. In the case of new installations, this would be the removal of residuals like process lubricants . Or, the removal of sludge and contaminants in the case of burn-outs. This can be accomplished with Nu-Calgon's Degreasing Solvent ef. The amount required will vary considerably, depending upon the size, configuration and type of system and components as well as type and degree of contamination. The considerations and guidelines discussed here will be helpful.



General Considerations

1. The system should be completely filled with Degreasing Solvent ef to achieve optimum results.
2. The use of a diaphragm or similar positive displacement pump is recommended. It should be installed in place of the removed compressor in order to move Degreasing Solvent ef through the system. Its action should develop a pulsating action on the part of the solvent, helping to mechanically scrub or scour the system's interior surfaces.
3. If cleaning a large system, it would be more effective to clean the system in parts or sections at a time by isolating the condenser and evaporator from the discharge and suction lines.
4. Acids may be formed during burnouts. Consequently, it is a recommended practice to use rubber gloves and eye protection in the cleaning of such equipment.

How much to use

1. For split systems or other systems containing only tubing and coils (no receivers), the system's capacity for Degreasing Solvent ef can be determined by estimating the total length of tubing in lines, coils and condensers, and then referring to Table A on the back page.
2. For packaged units or similar close-coupled systems up to approximately 5 tons, sufficient cleaning should be obtained with 1.6-4.0 gallons of Degreasing Solvent ef. Larger systems will usually require more.
3. One other "very approximate" rule of thumb is to use the refrigerant charge as a guide. A ratio of 1/6 gallon of Degreasing Solvent ef for every pound of refrigerant might serve as a starting point.

Table A

Gallons of **Degreasing Solvent ef** required to fill copper tubing or pipe

Outside Diameter of tube/pipe (inches)	Cubic Feet in Ten Linear Feet	Gallons of Degreasing Solvent ef in Ten Linear Feet
1/4	0.0020	0.015
3/8	0.0053	0.040
1/2	0.0100	0.075
5/8	0.0170	0.128
3/4	0.0250	0.188
7/8	0.0340	0.255
1-1/8	0.0570	0.428
1-3/8	0.0870	0.652
1-5/8	0.1240	0.930
2-1/8	0.2150	1.612
2-5/8	0.3320	2.490

Directions

1. Be sure refrigerant is properly recovered and handled.
2. If it is a burn-out, be sure electrical leads are disconnected and compressor is removed. If it is a new system clean up, disconnect electrical leads and remove compressor.
3. Remove expansion valve; once again, cleaning the system in sections is a good idea. However, if the entire system is cleaned at one time, install a bypass in place of the expansion valve.
4. Replace filter drier cores.
5. Install diaphragm pump where compressor was installed.
6. On heat pumps, remove check valve and four-way reversing valve, and install by-passes.
7. Circulate Degreasing Solvent ef for 30-60 minutes for moderately contaminated systems and up to 2-4 hours for more badly contaminated systems. Change filter drier cores frequently.
8. Shut off pump and disconnect discharge point; reconnect to a suitable container for receiving used solvent. Pump solvent out of system. Dispose of used solvent in an appropriate manner.
9. Blow nitrogen through system to thoroughly remove solvent and contaminates. Allow to air-dry thereafter.
10. Install new compressor as well as expansion valve (or capillary tune), drier cores and other components.
11. For heat pumps, clean, inspect and reinstall check valves and four-way reversing valve.
12. Triple evacuate the system to the low micron pressure range with a vacuum pump. Break the vacuum each time with new refrigerant. Leak check the system.
13. Operate the system. Check oil level, electrical controls, acid-level of oil and sight glass.
14. Where possible, after 24 hours of operation, check oil color, sight glass, and moisture indicator. Replace oil and filter-drier if the oil os not clear or is acid. Repeat procedure until oil remains clear.