



## *ProSolv® 5408e* cleaning solvent for flushing refrigeration pipeline systems

Concerns connected with the challenging environmental profile of traditional refrigerant gases have led to changes in legislation which are a driving factor in phase-outs and bans on the use of some gases to remove the older materials typically with high ozone depletion (ODP) and global warming potential (GWP). Systems can be replaced or refurbished with new models using compressors able to use more sustainable and acceptable gases. The evolving trend to newer refrigerants continues as the chemistries develop. The refrigerant R-22, which itself was an improvement over earlier refrigerants, is phased out and replaced with R-410a and other alternatives based on HFOs are being marketed.

Retrofitting of current refrigeration systems to accommodate the new developments is not straightforward as most refrigerant gases are not cross-compatible, so the necessity to completely remove all traces of the older versions from the system, including refrigerant lines is essential.

Of course, where possible it is best simply to replace existing lines with new ones. However, it is not always possible to do this cost-effectively, especially when the old piping runs under floors or through walls. In such cases thoroughly flushing existing pipework is especially important because even tiny traces of impurities left in the lines can damage new equipment and lead to compressor failure.

**THE PERFECT SOLVENT FOR FLUSH CLEANING REFRIGERATION PIPEWORK**

Your first step to proper pipework flushing is to select the right solvent. The solvent you choose must be highly effective at dissolving oil grease and other contaminants, to ensure that all residue is removed from the pipes and must be sustainable, environmentally friendly and comply with current legislation.

*ProSolv®5408e* is the ideal solution to this problem with a profile of properties and advantages making it perfect as your solvent of choice for refrigerant pipeline flushing.

- **No flash point.** Non flammable liquid.
- **High specific gravity** gives a high soil suspension loading.
- **High solvency strength.** With a KB value of 98.
- *ProSolv®5408e* is a **Powerful cleaning agent** that can flush lines fast, dissolving oil and grease releasing soils from the inner surfaces of pipelines and fittings
- **Volatile for fast evaporation.** Removing **ALL** solvent from the pipework after flushing is vital, *ProSolv®5408e* is very volatile so evaporates fast.
- **Environmentally responsible.** *ProSolv®5408e* is sustainable and kind to the environment with very low global warming potential, zero ozone depleting potential (ODP).
- **Safe for operators** when user conditions are followed.
- **Economical** as it is easily distilled for reuse. No testing or stabilisation required.

#### **PROCEDURE FOR FLUSH CLEANING REFRIGERANT PIPELINES WITH *ProSolv®5408e***

Of course, simply replacing old piping is the only way to be 100 percent sure that your lines are clean. But in retrofit situations where complete replacement is not possible, flushing the lines with *ProSolv®5408e* solvent is the best alternative solution for the protection and long working life of your refrigeration system upgrade.

**1 - Remove any obstacles.** Any equipment and components such as valve, filters and expansion valves that might obstruct the line should be removed prior to the purge.

**2 - Pre-flush.** This will dislodge any loose debris from the sides of the lines enabling more effective use of the solvent, oil free air or nitrogen at 120 psi is recommended. It's also good practice to oscillate the pressure to encourage dislodging of debris.

**3 - Preparing the pipework.** Reducing the length of piping can be more effective due to the pressure loss in long lengths. Section the operation into 15 metre lengths by cutting pipes where necessary. One end of the pipe must be fitted with a connector for the pipe to the nitrogen supply while the exit needs a restrictor valve to allow variable pressures to shock loose particles from internal walls.

**IMPORTANT - Flushing with solvent.** Refer to *ProSolv®5408e* Safety Data Sheets for advice on operator protection using solvents.

**4 - Safe working.** Full PPE with suitable eye protection goggles and gloves must be worn. Solvent fumes are heavier than air and exposure levels can easily be reached working in pits or enclosed spaces. Always institute a 'buddy system' and use air fed face masks with attached line.

**5 - Delivering solvent.** Use a drum pump electric or hand operated with a flexible tube connection for delivering the solvent to the open end of the pipe or tubing to flush the internal surfaces. Using a fresh drum of *ProSolv<sup>®</sup>5408e* connect drum pump and the delivery tube to the end of pipe/tube to be cleaned using a pre-fitted screwed or compression fitting.

**6 - Drainage and Testing.** The drainage end of the pipe or tube should be fitted with a flexible tube into a tank or drain sump allowing samples to be taken in a glass bottle or tube at regular intervals to be sure when no particles or soils are being expelled. The colour of the solvent will change as oil and soluble contaminants are removed and flushing must continue until the flow is totally clear and water white.

**7 - Post-flush.** *ProSolv<sup>®</sup>5408e* solvent is volatile so will dry completely using an oil free airline or nitrogen supply connected to the end of the cleaned pipe/tubing.

**8 - A wipe of the pipe/tubing surface at the inlet and outlet using solvent saturated lint free cloth completes the cleaning. If not connected immediately to other parts of the system enclose both ends of cleaned item to prevent recontamination.**

Used *ProSolv<sup>®</sup>5408e* should not be reused for flushing but can be recovered for reuse by a simple distillation process. Removal from site should use licensed disposal companies.

## FURTHER INFORMATION

Please visit our website [www.envirotech-europe.com/prosolv5408e](http://www.envirotech-europe.com/prosolv5408e) for information about other uses and applications for *ProSolv<sup>®</sup>5408e*.

Visit [www.envirotech-europe.com/applications-and-case-studies](http://www.envirotech-europe.com/applications-and-case-studies) for information about uses and applications for all EnviroTech Europe products.

For more advice, please telephone us on +44 (0) 20 8281 6370 or use our website contact form.

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