



Ask the Chemist: Flushing Refrigerant Lines of AC/R Systems

In the following interview, our R&D Manager, Dr Paolo Mattavelli, talks about the flushing of refrigerant lines of AC/R systems. When should this cleaning procedure be adopted? Why is it so important? Read the interview to clear up any doubts.

1. Flushing refrigerant lines: could you describe this procedure?

Cleaning refrigerant lines is a procedure that every HVAC/R technician must know, as an essential step to follow before he/she turns an air conditioning or refrigeration system on for the first time. It consists of a meticulous internal cleaning of AC/R systems, performed by applying specific products. Flushing refrigerant lines is fundamental to remove all the impurities (metal welding residues, dust, sand, etc.) that, if left free to circulate, would damage the system itself.

2. Can we perform this procedure as a maintenance operation as well? And, if so, are we talking about extraordinary or ordinary maintenance?

Cleaning refrigerant lines is a procedure that must be carried out not only on new AC/R systems but in other well-defined situations too. It can be considered an extraordinary maintenance operation of the systems.

3. What kind of situations do you mean?

The replacement of the compressor is the first one I want to introduce. Flushing refrigerant lines before a new compressor gets installed is fundamental to prevent all the contaminants in the old lubricant residue and the dirt left in the AC/R system to keep circulating. Similarly, cleaning refrigerant lines is necessary when the system must be retrofitted (i.e. a complete replacement of the refrigerant gas placed in it). This procedure tends to be performed when the gas still circulating in the system has been removed from the market, as it is no longer legal, and must be replaced with one that complies with the new standards. The flushing of the lines, in this case, is a fundamental step to prevent the new refrigerant from being polluted by residues of the replaced one.

4. Why flushing refrigerant lines is considered a fundamental step to follow?

Because if we do not clean refrigerant lines with proper refrigeration flushing fluids, impurities and dirt lying in the system will pollute the new refrigerant and lubricant, preventing the system from working properly. In some cases, it can even lead to damage to the system.

5. What is the main benefit linked to this procedure?

Flushing refrigeration lines lets systems run at their full potential.





6. Are there any products you would recommend?

There are several different refrigeration flushing fluids that I would recommend, but it depends on the needs and the specific situation they should cover.

Belnet, for instance, is a very efficient refrigeration flushing fluid with a high evaporation level, developed to be used in all AC/R systems.

Belnet Aerosol, instead, pressurized with CO₂, is the ideal solution to flush refrigerant lines of small AC/R systems. Both of them are flammable products, so they may not be the perfect solutions to use in situations or buildings that, due to the specific business activity or the materials used, are at risk of fire or burst.

To overcome this problem, we have developed Super Belnet, a non-flammable but still very efficient refrigeration flushing fluid, O.E.M. approved.

Top Flush, on the other hand, is Errecom green alternative with zero ozone depletion potential (ODP) and low global warming potential (GWP). Its formulation is designed to ensure lower environmental impact and to be less risky to operators. What makes it non-aggressive or corrosive, in fact, is its chemical composition, very similar to that of refrigerant gas.

Alpha Flush, additionally, is the non-flammable refrigeration flushing fluid specifically developed to be used with all automatic flushing units.

In the end, among the product news 2021, there is Safenet: an extremely effective, non-flammable refrigeration flushing fluid with a high evaporation level at a very competitive cost.

7. Do you have any advice for our readers?

My last piece of advice is to keep flushing the lines until the fluid comes out clean. A further very important step is to flush them with nitrogen, completely removing any residual washing liquid.

Never neglect the cleaning of refrigeration lines at any stage: a dirty system has a very short life.

