

Hanover, May 2007

Counterfeit R134a – What are the consequences?

During the last two years more and more counterfeit R134a entered all markets, especially the Middle East and Maghreb countries.

All counterfeit refrigerants have in common that they are offered in disposable cylinders at a very low price in comparison to well known R134a brands or in comparison to R134a in returnable cylinders.

How is this possible? The answer is quite simple. The cheap price can only be achieved by selling other refrigerants than R134a. The most common refrigerants in counterfeit R134a are pure R12 or blends of R22 / R152a or R22 / R152a / R142b. A very common explanation of the cheap price is the origin of the material and mostly with the hint that it is “Chinese R134a”, which is just cheaper. But this is not true. The reason for the cheap price is: the refrigerant in the disposables is simply no R134a.

The first two pictures show examples of a typical packaging of counterfeit “Chinese R134a”.

The printing of the carton indicates the content of R134a. A further hint on fake material is the weight which often does not meet the weight labelled on the carton and the cylinder itself. In case of any doubts it is always recommended to ask for a MSDS of the product or a certificate of its origin.



What are the consequences of using fake R134a?

Apart from the negative consequences for the environment by using ozone depleting substances some severe problems exist for the refrigeration system itself. Most of the fake R134a gases are mixtures of R22 and other gases with a lower pressure level. These mixtures show often zeotropic behaviour. A typical example is R415B (R22/R152a 25/75%) which became quite famous as a cheap R134a replacement over the last years. An unexpected use of these mixtures in R134a designed systems leads to serious problems like liquid slugging and compressor failures. Some of the mixtures tend to have less capacity than R134a. The system has to work more often and under difficult conditions. An increased wear and tear is the consequence. R22 has different solvent characteristics than R134a. Damages on the gaskets and flexible hoses caused by R22 result in complete system failures due to refrigerant losses. Fake R134a with a high R152a content (like R415B) is flammable (see picture 3). Unexpected explosions can occur while maintaining systems filled with these kinds of fake R134a.



All these dangers for people and systems should be considered and evaluated in respect of the little money saved by buying refrigerant of unknown quality. The best way to avoid buying fake R134a is to purchase it from a reliable source or in refillable cylinders.

In case of any questions, especially with regard to the consequences of using fake R134a, please contact your technical service team at SOLVAY FLUOR in

Hanover:

refrigerants@solvay.com