

## REFRIGERATORS AND REFRIGERANTS – THE FUTURE

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After the Montreal Protocol a large discussion has started concerning the alternatives for the different CFCs. A lot of different points have to be considered carefully. These are e.g. ozone depletion, global warming, flammability and toxicity. Because there will be no fluid with positive results at all four points, we must be aware of at least one risk. The development goes in two directions, on the one hand towards fluorinated hydrocarbons and on the other, towards natural fluids like ammonia, propane, butane, CO<sub>2</sub> and water.

This paper shows the main impact of the refrigerants on the environment and the technical demands for refrigerants in refrigeration systems. Comparisons between the different refrigerants are done also on the basis of the Total Equivalent Warming Impact, TEWI.

The alternatives also demand several changes in the hardware equipment of the compression systems. Another possibility is the switch to other systems like Absorption and Stirling-Refrigeration plants. These systems have special temperature ranges and different part-load behaviour. This must be considered in all comparisons.