CO for industrial cleaning

Carbon dioxide, which is colour-free, odourless, flavour-free and non-flammable, is an environmentally sound alternative to traditional industrial cleaning methods.

Wide application spectrum

Carbon dioxide (CO) has good solvent properties, both in its liquid and supercritical state. In thermodynamics, the critical state is defined as the point where the properties of the gas and liquid phases of a material approach one another. In supercritical state, the high solvency of a liquid and the low viscosity (fluidity) of a gas are combined in one material. This is why CO is already successfully deployed as an alternative to conventional chemical cleaning processes, in textile cleaning for example. Linde evolved the long-established CO cleaning technology to develop an environmentally sound textile cleaning process. It launched this textile innovation in 2006 under the name Fred Butler® (see Corporate Responsibility at linde.com).

At the moment, industrial cleaning usually relies on water-based or solvent-based processes. The disadvantage here is that parts must be dried after cleaning and solvents used often have a high global warming potential.

Easy removal of product residue

Solid carbon dioxide (dry ice) has become increasingly popular for industrial cleaning applications in recent years. This is due to the many benefits offered by dry ice. For example, it is an excellent replacement for corrosive and aggressive solvents, eliminating harmful emissions. As it does not use water, it also eliminates the generally expensive waste water treatment step. Sticky, elastic dirt can be removed quickly and easily without leaving remnants of any blast-cleaning agent, thus eliminating additional cleanup and removal costs. There are two CO cleaning methods – dry ice blasting and CO snow cleaning. Dry ice blasting is usually carried out manually when heavy-duty cleaning is required. Linde supplies pellets of dry ice or particles obtained from blocks for CO blasting. CO snow cleaning uses pressurized, liquid CO in cylinders or tanks. This liquid CO is expanded to generate a stream of solid CO snow particles that is sprayed on the surface to be cleaned. This method is popular for professional cleaning work, for example, in the printing, food, metal and rubber industries. Dry ice blasting was also the method of choice when the oil tanker “Prestige” sank off the coast of northern Spain in November 2002, necessitating a wide-scale, effective and environmentally friendly cleanup of oil spillage.