

Press Release

Dry Ice Cleaning: Inexpensive and Ecological

Chemiepack: “The ideal solution for our wastewater problem”

Gent, July 2006: *One of the customers of the Dry Ice Cleaning Machines is the Dutch company Chemiepack. Chemiepack fills up small packages for chemical companies. The manufacturers deliver their products in bulk at Chemiepack. Chemiepack packs all kinds of liquids and powders: plant protectors, oils, washing-powders. These products are then filled in the required packaging, for example to send them by post as free samples.*

The most important argument for Chemiepack to choose for dry ice is the Dutch environmental legislation that becomes more and more strict. A packing company, and especially a packing company that packs not one product but innumerable different products, frequently has to clean thoroughly its packing line. This is possible with water and a high pressure cleaner, but of course then you need to be able to get rid of your rinsing water. Both in Flanders and in the Netherlands specialized companies exist, which collect and process that rinsing water, but this processing is very expensive.

Especially in the case of Chemiepack: a lot of different products are packed there, and therefore a lot of different products end up in the wastewater. The less harmful washing-powders disappear together with the pesticides in the same wastewater tank, which is emptied once a week. You always pay the collecting service for the most polluted part of the rinsing water, even though it is mixed with many less harmful substances.

Gerard Spiering, manager: “We have orders from one hundred to one hundred thousand kilos, so we need to break up, break down, clean and break up again our filling lines every time. We used to use water for this cleaning process, but since water is becoming more and more expensive, we looked for an alternative. We first tried steam, but weren’t really satisfied.

Then we discovered dry ice. We soon recognized that dry ice was the perfect solution for our wastewater problem. Wastewater has always been expensive, but in the last years, the prices kept on increasing faster. We used to have three hundred thousand litres of wastewater a year, which

we now have reduced to one hundred and thirty thousand litres. At 80 cents per litre, the dry ice cleaner we have had since the end of May 2002 is a serious money-saver!”

“The machines can also keep on running during the cleaning process. In the past, we had to stop the machines, switch off the stream and strip down everything before we could use the high pressure cleaner. With the dry ice cleaner we can clean while the machine is running. This process goes so fluently that nowadays we only need one cleaner, when we used to need two men.”

“The machines are also cleaned more thoroughly than in the past. The only disadvantage is the noise the machine makes. Otherwise we haven’t had a single problem since the purchase of the machine.”



Picture 1



Picture 3



Picture 2

Picture 1 and 2: Dry Ice Cleaning with CRYONOMIC®

Picture 3: Before and After Dry Ice Cleaning with CRYONOMIC®

Chemiepack is a typical application where the CRYONOMIC® blasting equipment saves a lot of money and allows working environmentally friendlier. There are of course many other applications.

For more information, see www.cryonomic.com.

How does dry ice cleaning work?

Dry ice cleaning is a blasting technique similar to sand blasting and high pressure water cleaning. Contrary to traditional cleaning methods, dry ice cleaning uses solid CO₂ grains, also known as dry ice or CO₂ pellets. The advantage of using solid CO₂ as blasting material is twofold. Firstly the very low temperature of the dry ice pellets, seventy-eight degrees below zero, causes the contamination to freeze and contract, resulting in the easy detachment of the contaminant from the substrate. Secondly the dry ice pellets vaporize to carbon dioxide gas, which means that only the original contaminant is left for disposal. This natural evaporation of dry ice pellets is a major advantage of the dry ice cleaning method.

Where do the pellets come from?

Pellets are made of liquid CO₂. From that liquid CO₂ we make a type of snow, which is then pressed by a mould to pellets of three millimetres.

These pellets can be stored a few days in well-insulated containers. The use of liquid CO₂ does not cause any additional damage to the environment, as it has been recovered from other processes, such as the production of ammonia.

Only if you consume lots of pellets, it makes sense to produce them yourself. Otherwise it is easier to buy them, in the nearest CRYONOMIC® distribution centre for example.

What can we clean with it?

Dry ice cleaning is a surface cleaning process. Moulds for casting aluminium or rubber, industrial printing presses, everything with regard to glue or fat, sugar tanks, waffle irons, ... These are ideal applications because they concern contaminants that stick to a surface. Corrosion or rust is not that easy to remove with dry ice.

Is it a difficult cleaning technique?

If someone shows you how to do it, dry ice cleaning is not that difficult. That's why we provide a training of a few hours with the machines: a technical explanation, a safety briefing, a blasting exercise and a solid explanation of the risks. The safety equipment you need is not that unusual either: a pair of gloves, a face mask to protect you from the contaminants roaming about and ear muffers.

When is dry ice cleaning lucrative?

Dry ice is used in all kinds of situations where the traditional cleaning methods (water, chemicals or sand) are bad for the environment (and therefore cost more as the regulation becomes more and more strict), or bad for the production itself. In the cigarette industry for example you are not allowed to use chemical products because they can leave behind a smell in the cigarettes.

Contrary to sand blasting, dry ice also removes the contaminants from delicate surfaces without damaging them. You could even do the dishes with dry ice. Furthermore dry ice is not a conductor, therefore you can clean machines or even electrical cabinets under voltage, which you can't do with water.

An important advantage of dry ice cleaning is the gain in time, because you don't need to strip down the machine before cleaning. Furthermore you can resume production immediately after cleaning. The fact that you only have to clean up the waste and not a by-product means another major advantage.

What are the advantages of the CRYONOMIC® equipment?

Our standard machine is available with different options, but all versions work by the same principle, more specifically with two hoses: pellets and compressed air are supplied separately and are not mixed until they reach the gun. That's why for the same cleaning job the CRYONOMIC® machines use less pellets than one-hose systems.

Furthermore, thanks to a better blasting system, our equipment can work with much longer hoses. In that way you can leave our machine on the ground, while you're cleaning up to 40 metres higher. This means you don't need to lift the whole machine, a huge gain in fluency and safety.

What do you need to use our machines?

You need a rather powerful compressed air installation. Our machines consume four to eight cubic metres per minute under four to eight bar. Moreover, the compressed air needs to be dry. There can't be any water or oil in the air. Water or oil would freeze in the machine and block the action.

Most companies are sufficiently equipped for this. Usually you can solve a small deficiency with a bit of creativity. One of our customers didn't have enough capacity, but could initially solve this problem by cleaning on Fridays and Saturdays. On those days there is no production and so the installation is less loaded. Once they recognized how much money they saved with dry ice cleaning, they simply added a compressor.

Companies that don't have enough compressed air and don't want to buy a compressor, can also hire a contract worker. That's someone who is sent by us, whom you pay per hour and who brings a whole unit, including his own mobile compressor. In most cases these contract workers bring their own dry ice as well.