

The 'new Ice Age': Cost-effective, water-saving industrial surface cleaning with first-of-its-kind wet ice blaster from NitraLife and partner Boland Ice



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For decades in industry, the cleaning of rust, dirt, old paint and various contaminants off surfaces has frequently presented a major challenge. Cleaning of this type has previously been done manually; or via processes such as sand- or shot-blasting or with the use of high-pressure water jetting (hydro-blasting).

Now, in an initiative that is set to revolutionise industrial cleaning, leading nitrogen generation pioneers, Johannesburg-based company NitraLife - along with its long-term partner Boland Dry Ice - has introduced innovative wet ice blasting technology for the first time ever in South Africa. In January 2018, this partnership secured the sole Southern African agency for this revolutionary industrial cleaning system from principal Coulson in Canada.

"We are very excited about this technology, as it offers a more cost-effective and far more environmentally-friendly, water-saving option to current conventional industrial cleaning technologies," says NitraLife Sales Director Tom Sowry.

"Compared to the new technology of wet ice blasting, conventional hydro-blasting uses up to 35 times more water to achieve the same effect. In South Africa, where ongoing, acute water shortages are a constant daily reality for many, the water-saving capability of wet ice blasting is

a welcome game-changer in the industrial surface cleaning sector," Sowry points out, adding that frequently, other methods of cleaning use chemicals which could be detrimental to workers' health. With wet ice blasting, the only media used is completely safe water.

"In terms of cost and convenience, compared to sand-, shot- or plastic-bead blasting, Coulson wet ice blasting uses ice which is significantly more economical - and can be easily managed on site," he adds.

The only residue left behind after wet ice blasting is a limited amount of water. With sand-, shot- or plastic-bead blasting, the large amounts of contaminating residue that has to be disposed of after the cleaning process is finished, can present an issue.

Using conventional non-ice cleaning media also creates hazardous airborne contaminants, which could pose a potential risk. In comparison, the Coulson wet ice blasting system creates a mist which suppresses airborne contaminants very efficiently. This is particularly important when cleaning or blasting surfaces that have formally been painted with lead-containing paint.

"Wet ice blasting relies on three actions to achieve its effect. First of all, through solid-to-solid impact, major contamination is removed. Solid wet ice is superior to liquids in this respect, as water or chemicals tend to flow around stubborn contamination," says Johan van Heerden, Managing Director and owner of Boland Dry Ice.

He continues: "Secondly, in the detailed cleaning phase, solid wet ice particles provide the scrubbing and polishing action which removes any remaining contamination from the surface being cleaned. Water as a blast stripping agent does not offer this cleaning action.

Thirdly, once the contamination has been removed, as only wet ice has been used in cleaning, there is no need for an additional rinsing step, which is required when certain chemical cleaning agents are used."

Workers using wet-ice blasting equipment should wear personal protective equipment (PPE) but do not need the massively heavy protective suits and respiratory aids which are essential when using sand- or shot-blasting.

In terms of dry ice blasting, the Coulson wet ice blasting system is largely complementary, as dry ice uses temperature differentials to remove contaminants while wet ice blasting uses solid-to-solid impact for the same effect. However, dry ice does require special storage and handling, and care has to be taken in its use in confined spaces as it releases carbon dioxide.

The Coulson IceStorm90 ice blaster is the first industrial cleaning machine on the market to use crushed ice as blasting media. Coarse ice cubes can be fed into the machine which then automatically crushes the ice to the grain-sized particles required for blasting.

"In collaboration with our partner Boland Dry Ice, we recently imported a Coulson IceStorm90 wet ice blasting machine. We put it through extensive tests and were very impressed by the results," says Sowry. He cites the example of using the machine to remove old hardened rubberising, which had resisted sandblasting, from the back of a bakkie.

"Wet ice blasting removed the rubberising very effectively," he enthuses.

The applications for wet ice blasting for surface cleaning are numerous and range across all sectors of industry. "The most obvious applications are in locomotive and ship maintenance and repair – though there are many more – for example wet ice blasting is very good at removing graffiti off walls so is used overseas by many town councils or municipalities for this purpose," comments Sowry.

"We could well refer to Coulson's highly innovative technology 'the new ice age'," continues Sowry. "However, unlike past ice ages, the new age of wet ice blasting heralds a major and highly welcome technological advance into truly cost-effective, environmentally-friendly industrial cleaning," he concludes.