

# Dry Ice Blasting in the Plastics Industry

Mould and tool cleaning without production stop

ascoco2.com

With our ASCO dry ice blasting technology, we have developed a powerful process that is particularly suitable for gentle mould and tool cleaning (e.g. moulds for PU production, injection moulds etc.).

In the plastics industry, the cleaning of tools and (injection-) moulds is an important part of the manufacturing process and of great significance. Not only can quality be increased, but productivity and costs can also be optimized.

**The ASCO dry ice blasting technology offers the following advantages:**



## POWERFUL & GENTLE

The hardness of dry ice pellets can be compared to the hardness of chalk. As a result, the surface structure of the cleaning surface is not damaged or changed in any way. Dry ice blasting is a gentle yet effective cleaning method. Fine edges and fine structures remain unchanged. Unlike steel brushes or scrapers, dry ice blasting does not damage materials. ASCO'S unique nozzle technology with sophisticated aerodynamic flow behavior ensures an optimum blasting result.



## COST SAVING

Downtime of the objects or machines to be cleaned, interruptions of production and expensive disposal of hazardous waste are eliminated.



## TIME SAVING

Cleaning of machines, tools, moulds, conveyors, etc. can be performed during the ongoing production process. Since this cleaning technology is dry and non-abrasive, it can be applied directly onto the object to be cleaned. This way, downtime can be reduced to a minimum. Cooling or, conversely, heating of tools is not necessary. This saves valuable time.



## ENVIRONMENT FRIENDLY

On impact the pellets immediately change to a gaseous state. Only the removed contamination remains. There is no need to dispose of the cleaning media. This reduces waste dramatically! No sewage - or cleaning and filtration of wastewater. No contamination by hazardous additives, chemicals etc. No remains of the cleaning media. Dry ice is basically non-toxic.



## SAFETY

Cleaning with dry ice is a dry and non-conductive cleaning process. By eliminating the use of solvents and hazardous chemicals the dry ice cleaning technology is safe for people and environment. The equipment is light, mobile, low in maintenance, reliable and easy to operate.



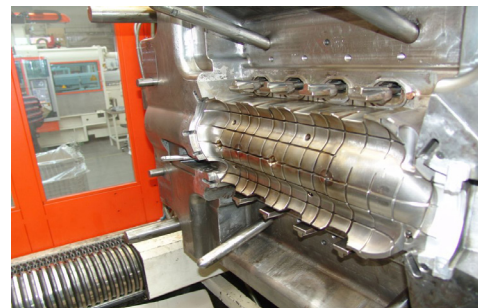
## Plastic Industry: This is how dry ice blasting is used

Many manufacturers of plastic and foam products use dry ice blasting to avoid expensive production downtime and to achieve higher quality through more regular cleaning. The moulds are not damaged by the blasting media or the temperature difference.

The quality of the cleaning also decisively determines the production quality and the service life of the moulds.

An important factor for production is the gentle cleaning of mould surfaces, such as the removal of **adhering polymers, kerosene deposits, carbon burns and release agents**.

Gentle cleaning can be carried out directly on the machine in the assembled state without causing downtimes and set-up times.



Plastic injection mould



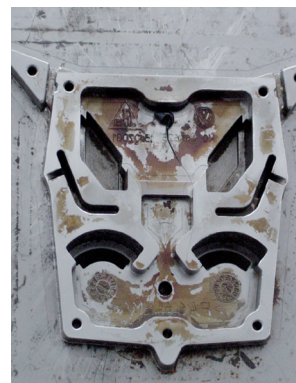
PU foaming tool



Before: PU foaming tool



After: PU foaming tool



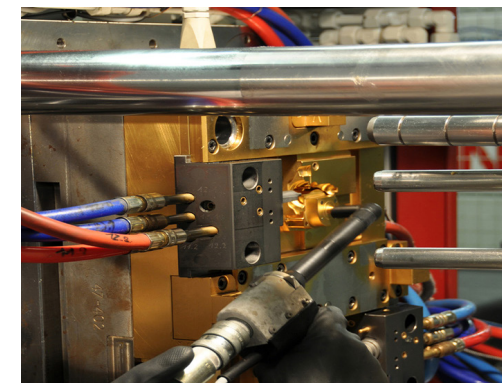
Before: Injection moulding tool



After: Injection moulding tool

## Our competence - your advantage

- In toolmaking or plastics industry (PU foaming machines) excellent results can be achieved with the two ASCO blasting units **ASCOJET 1208 and 1701**. This applies in particular for aggressive contamination of large PU foam moulds.
- Together with specially developed blast nozzles, our ASCO blast units are the perfect all-round package for the plastics - and rubber industry.
- The plastics industry is the driving force behind the development of our blasting technology. Tough operating conditions require solid blasting technology. The modular and maintenance-friendly design of **ASCOJET blasting machines** makes it possible for maintenance and wear repairs to be carried out by in-house technicians in the plants. This saves money and prevents unnecessary downtime.



Among other things, the cleaning of injection moulds is performed easier and faster with the **ASCO dry ice blasting process**.

The cleaning time of several hours is reduced to a few minutes.



**Conclusion:** Are you looking for a competent partner for the optimum cleaning solution for injection moulds and tools? Benefit from our decades of experience in the plastics industry. We will be happy to help you to find a tailor-made solution for your application.

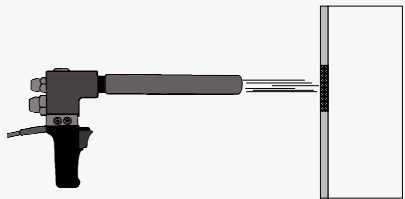


## The Process

Dry ice is produced from liquid CO<sub>2</sub>. Inside an ASCO dry ice pelletizer, the liquid carbon dioxide is expanded under controlled conditions to form dry ice snow (approx. -79 °C) is pressed into pellets by a corresponding extruder plate.

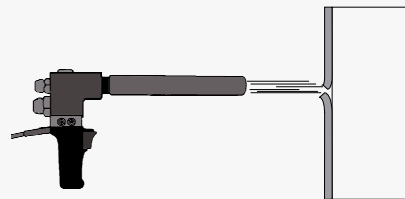
The dry ice pellets are filled into the ASCO dry ice blasting unit and conveyed to the blasting gun. Here the pellets are accelerated with compressed air to a speed of up to 300 m/s and hit the moulds to be cleaned. The impact of the pellets creates a punctual thermal shock and kinetic energy which removes the contamination. The pellets immediately change to a gaseous state on impact, leaving a clean and dry surface. Only the removed contamination remains, and no abrasive needs to be disposed of. Since the pellets only have a hardness of less than 2 Mohs, the surface quality is maintained. Likewise, thermal shock has no adverse effect on the surface structure of the moulds.

## Cleaning Method



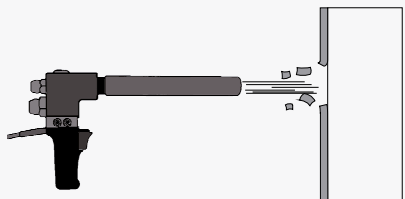
### The thermo shock

As a result of the sudden and intense temperature shock on the surface, the coating or impurity contracts.



### The cracking

As a result of the contraction the coating cracks and the material becomes brittle due to the cold.



### The cleaning

The dry ice pellets hit the surface with great speed and remove the detached coating and clean the surface material



**ASCOJET 1208**  
The Small Industrial



**ASCOJET 1701**  
The Industrial Allrounder



**ASCOJET 1708 Combi Blaster**  
The Flexible Abrasive



**ASCO CO<sub>2</sub> Detectors**  
For your Safety



**Dry Ice Box AT126**  
Storage of Dry Ice Pellets



**Dry Ice Pelletizer P15i**  
Production Capacity  
150 kg/hr for 3 mm Pellets

## The complete solution

As leading provider of complete dry ice blasting solutions, ASCO's aim is to find tailor-made solutions for individual customer requirements. The extensive ASCO product and service range consists of:

- Dry ice blasting units
- Dry ice pelletizers
- Dry ice containers
- CO<sub>2</sub> gas detectors
- Wide range of accessories
- Specially developed guns or nozzles
- Automated cleaning solutions
- High quality dry ice
- Building up your in-house dry ice production

**ASCO not only introduces you to the ASCO dry ice blasting technology but helps also with integrating dry ice cleaning into the production process and continually optimizing it.**

In case of an increased demand for dry ice we will be pleased to offer you an economical calculation for your inhouse dry ice production to optimize on cost and quality. Our product range contains dry ice pelletizers with production capacities from 150 to 750 kg/hr.

The **ASCO CAREFREE rental solutions** enable you to have your own dry ice production without investment costs! Ask us!