Nonabrasive cleaning of tools

Pore-deep clean surfaces

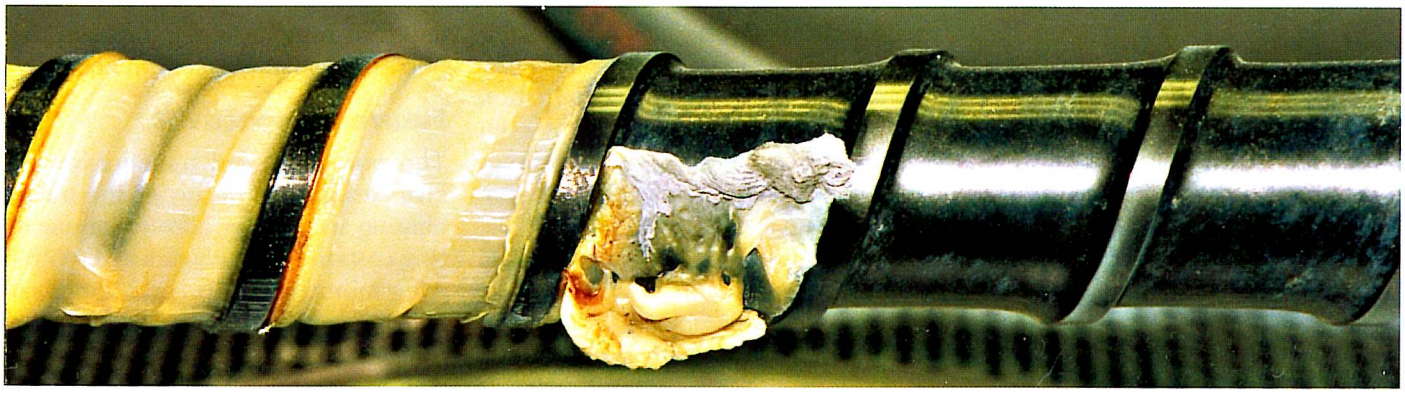
Microblasting technology allows clean non-abrasive removal of soilings and dirt due to elastomers and plastics from all types of surfaces, in a dry manner and without resorting to chemicals. In so doing, the surfaces of the basic material are not damaged, thus ensuring processing of polished extruders and mould tools without running any danger.

Conventional cleaning methods

Cleaning of tools in the plastics-processing industry is very often extremely time-consuming. Moreover, conventional cleaning procedures using solvents, wire brushes, scratch tools and Bunsen burners are no longer up-to-date. What's more, these manual cleaning methods leave distinctive traces and damages, which in turn entail premature soiling.

Modern efficient dry cleaning

With an accurately defined mixture of various blasting agents, the soiled parts can be thoroughly cleaned in minutes down to the depth of pores and

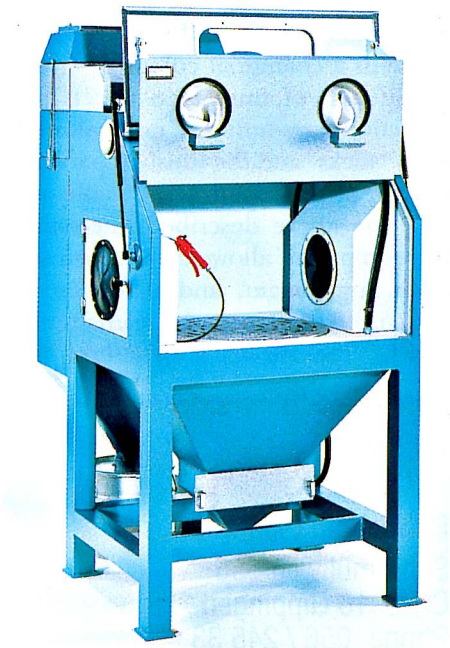


Partially cleaned extruder, with polished surface kept intact

free from abrasion. This does neither entail any heat- or cold-related effects, nor any undesired side-effects such as distortions, modifications of the surface topography, destruction of polished surfaces, damaging of edges of mould tools etc., which cannot be avoided in case of manual cleaning despite observing the utmost care. The cleaning procedure performed by the microblasting equipment "MICROPEEN" uses the microblasting agents IEPCONORM specifically developed for this purpose.

High-performance IEPCO microblasting equipment

Operation of these microblasting systems is based on the pressure principle. This makes possible maximum intensity degrees in order to remove even the most intractable soilings



MICROPEEN 950 ZPD

and sediments of colouring pigments. Feeding of the equipment may occur via the stroke flap front door which can be easily opened by a gas-pressure cylinder. A fork-lift truck may also be used for this purpose. For specific handling of heavier and bigger parts, the systems are additionally equipped with a rotary table. If desired or required,

Compound screw soiled by synthetic additive

Partially cleaned extruder

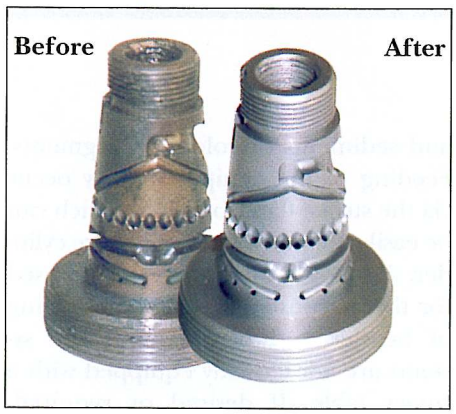
lateral feeding doors may be installed so that feeding may also occur from the left-hand side and/or the right-hand side. So as to allow cleaning of long extruders, it is possible to equip the side doors with detachable feeding boxes as well as with integrated rubber ducts. The interior of the system may additionally be equipped with supporting roller brackets.

Extruders

On using conventionally treated extruder (compound) screws, the plastics to be processed – both duroplastics and thermoplastics – are deposited on the uneven topography, getting continuously melted thereon in an irregular pattern. In order to allow smooth and clean further processing of the new mixture after changing colours or products, these new soiling matters have to be removed from the surface.

Operating mode

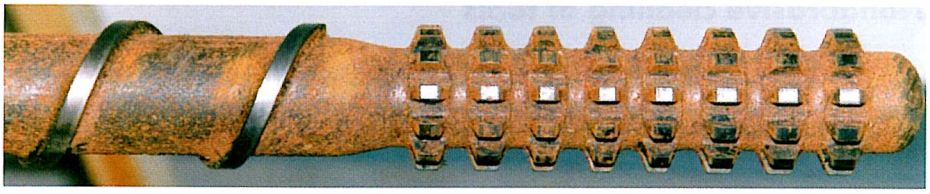
When applying the IEPCO microblasting technology, neither surfaces nor edges are destroyed or damaged in these instances, and neither do there arise any undesired side-effects. Even extruders and extruder components polished with mirror finish can in this way be cleaned without danger in a few minutes. To give an example: absolutely clean and complete elimination down to the depth of pores of even thoroughly adhering plastics soilings on an extruder of about 1'000 mm length takes just about 15 minutes.
In addition, it is possible to eliminate without any problems rubber residues, adhesive substances, varnishes and organic dirt from open areas of surfaces.



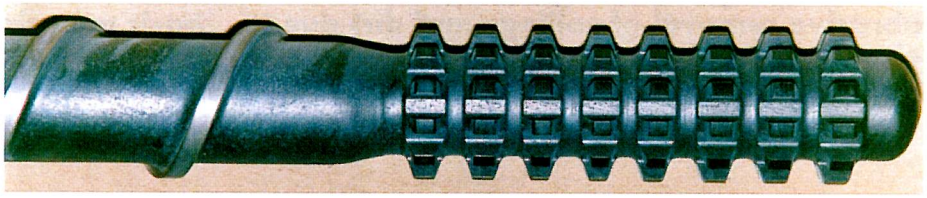
Mass dispersive distributor "quill" of an extruder crosshead for cable and wire coating

Precipitations/deposits

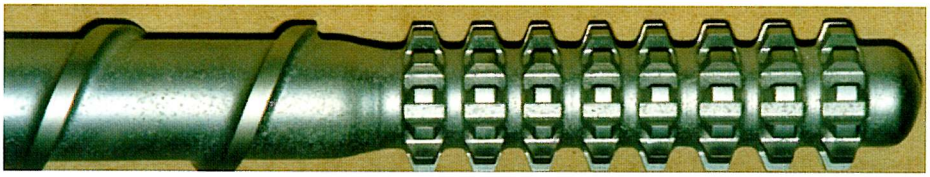
Mould-making and form tools often become soiled by precipitations of colour pigments as well as of parting and separating agents. Such a situation prevents a change of colour or entails production of numerous rejects and defective parts until the new colour finally "sticks" and the finished parts are ejected by the tool in impeccable quality. The above described microblasting equipment allows elimination free from any danger, and this even on structured surfaces. As a matter of course, the surface's structures and depth of roughness, i.e. peak-to-valley height, are kept perfectly intact.



Pre-cleaning condition



Soft cleaning



Tribofinish

Future perspectives

The pore-deep and nonabrasive surface cleaning by means of the microblasting technology allows manufacturing costs to be greatly reduced. Within a few minutes, all dirt and soilings can be completely eliminated without running the least danger. In this way, it is possible to economize much time and, in many cases, save precious energy.

Author: André Faude,
Managing Director,
IEPCO AG, CH-8181 Höri