80% COST REDUCTION WITH ITALTECNO CAUSTIC SODA RECOVERY PROCESS

A NEW PATENT FOR ECONOMY AND ECOLOGY

INTEGRETED DIE-CLAR & CRYSTELFIX SYSTEM

The process described is a new plant design for cleaning extrusion dies in a more ecological, faster and fully automatic way compared to conventional methods in use also today.

The new process guarantees that the caustic soda solution used for dissolving the aluminium metal in the dies is always transferred into a holding tank before any opening of the covers of the treatment tank so that no caustic soda fumes can be released in the working environment or outside.

During the cleaning phase (treatment) the process is “fumes-free” since hydrogen and caustic fumes can be sent away through a “hood” and treated separately (scrubber, etc).

The agitation of the solution through pumps offers 20 – 25% faster process than the conventional methods.

All the plant is automatically operated by a programmable PLC so that operators only have to place the dies before cleaning in suitable baskets in loading positions and to take out the cleaned dies from same baskets located in unloading positions after being transferred automatically from the treatment tank.

The die cleaning plant may be completed with a special saw for cutting and recovering part of the aluminium metal left in the bottom of the extrusion dies before the automatic cleaning and with an optional caustic soda recovery system.

With the caustic soda recovery plant it is possible to almost totally recover the caustic soda, reducing almost to zero its consumption.

The only by-product of the process is simply a very dry mud composed of aluminium hydroxide, which can even be sold, eliminating therefore the necessity of disposing of toxic harmful substances.

Other than the evident economical advantages, the described process is highly ecological for the environment and it also allows to recycle the used chemical products.

Dissolution of aluminium metal in the extrusion dies by means of caustic soda solution at controlled temperature with enhanced mechanical action of the solution and absolutely no caustic fumes during processing. The extrusion dies, already cleaned and rinsed, are removed from the tank (H2 gas is removed by means of a hood and chimney system) only when the tank is empty of the caustic solution.

No waste water treatment is necessary. Exhausted rinse water has to be reused for caustic soda recovery.

The latest studies about die cleaning and caustic soda recovery have brought to the development of different models of equipment not only based on the number of dies to clean but also on the different investment budget of the extrusion industries.

The possible plant configurations are: small, medium and large size, with manual, semi-automatic or fully automatic functioning.

The latest improvements of this technology have been mainly focused on the reduction of the cost in terms of equipment:

- Optimization of the cycle and the piping

- Possibility to use a different filtering system (like filter press)

It is important to emphasize that when the dies are taken away no fumes or hydrogen exhalation will come out since the tank, when open, is empty and the dies have been rinsed twice with water.

Average savings in terms of both chemical consumption and disposing

The following table summarizes the savings per year regarding the applied technologies.

A clean, automatic, ecological safe process for caustic soda recovery after cleaning of extrusion dies has been developed and industrially applied.

This system has created a valid and innovative solution with the possibility of recovering and reusing almost 100% of this chemical. The latest studies about die cleaning and caustic soda recovery after die cleaning in the extrusion industry have brought to the development of different models of equipment not only based on the different investment budget of the extrusion industries. The results are small, medium and large size equipment with manual semi-automatic or fully automatic functioning, but also low cost equipment: for example, recovery of caustic soda from die cleaning can be obtained using centrifuges (high efficiency and small amount of solid waste) or more economic filtration systems like filter-presses where the lower efficiency is compensated by lower cost.

Other than the evident economical advantages, the described process is highly ecological for the environment and it also allows to recycle the used chemical products.

Dissolution of aluminium metal in the extrusion dies by means of caustic soda solution at controlled temperature with enhanced mechanical action of the solution and absolutely no caustic fumes during processing. The extrusion dies, already cleaned and rinsed, are removed from the tank (H2 gas is removed by means of a hood and chimney system) only when the tank is empty of the caustic solution.

No waste water treatment is necessary. Exhausted rinse water has to be reused for caustic soda recovery.

The latest studies about die cleaning and caustic soda recovery have brought to the development of different models of equipment not only based on the number of dies to clean but also on the different investment budget of the extrusion industries.

The possible plant configurations are: small, medium and large size, with manual, semi-automatic or fully automatic functioning.

The latest improvements of this technology have been mainly focused on the reduction of the cost in terms of equipment:

- Optimization of the cycle and the piping

- Possibility to use a different filtering system (like filter press)

It is important to emphasize that when the dies are taken away no fumes or hydrogen exhalation will come out since the tank, when open, is empty and the dies have been rinsed twice with water.

Average savings in terms of both chemical consumption and disposing

The following table summarizes the savings per year regarding the applied technologies.

A clean, automatic, ecological safe process for caustic soda recovery after cleaning of extrusion dies has been developed and industrially applied.

This system has created a valid and innovative solution with the possibility of recovering and reusing almost 100% of this chemical. The latest studies about die cleaning and caustic soda recovery after die cleaning in the extrusion industry have brought to the development of different models of equipment not only based on the different investment budget of the extrusion industries. The results are small, medium and large size equipment with manual semi-automatic or fully automatic functioning, but also low cost equipment: for example, recovery of caustic soda from die cleaning can be obtained using centrifuges (high efficiency and small amount of solid waste) or more economic filtration systems like filter-presses where the lower efficiency is compensated by lower cost.

ITALTECNO

Via Marinuzzi, 38 - 41122 Modena (Italy) - Tel. +39 059 280362

info@italtecno.com - www.italtecno.com