BLOG_260908_TMP_Process engineering machinery ATEX – still a homogeneous mixture

_Process engineering machinery ATEX – still a homogeneous mixture

https://lnkd.in/p/ez-r7Ffv

Process engineering machinery, ATEX – and still a homogeneous mixture

As we noted in our previous post on this topic, the key issue regarding process engineering machinery and ATEX is ensuring absolute safety in the prevention of explosions.

The greatest risk of ignition arises from so-called "hybrid mixtures," where a combustible dust combines with a highly explosive gas.

When air—or even oxygen—enters the process, the situation becomes truly explosive.

All that is then required is a spark (providing sufficient ignition energy) and a substance present in a concentration that makes it combustible—and thus explosive.

At this point, the risk of severe damage is high.

Pharmaceutical technology presents a particularly challenging scenario. The homogenization of polymers—essentially the dusts later used for tablet coatings—creates the dreaded "hybrid mixture." These dusts are produced via spray drying (in a spray tower).

High-pressure homogenizers, which also serve as feed pumps, are employed just prior to the homogenization stage. Since the polymers are partially dissolved in solvents before drying, the situation can become critical from an explosion protection standpoint.

Solvent vapors are highly explosive and extremely flammable. Furthermore, pharmaceutical dusts typically exhibit very low minimum ignition energies.

Paracetamol (an active pharmaceutical ingredient), for instance, is among the substances highly sensitive to ignition, with a minimum ignition energy of 10–50 mJ.

Consequently, the high-pressure homogenizer operates within a highly explosive atmosphere!

What measures must be taken directly on the homogenizer to ensure preventive explosion protection?

- All electrical components and belts must possess their own ATEX certification.

- The frame/housing is manufactured from stainless steel.

- Consistent use of antistatic, dissipative, or conductive plastics.

- Use of additional temperature sensors on the motor and at critical points.

This allows the device or machine to be safely installed in potentially explosive atmospheres.

The person responsible for the process has thus fulfilled their duty of care regarding this sub-process.

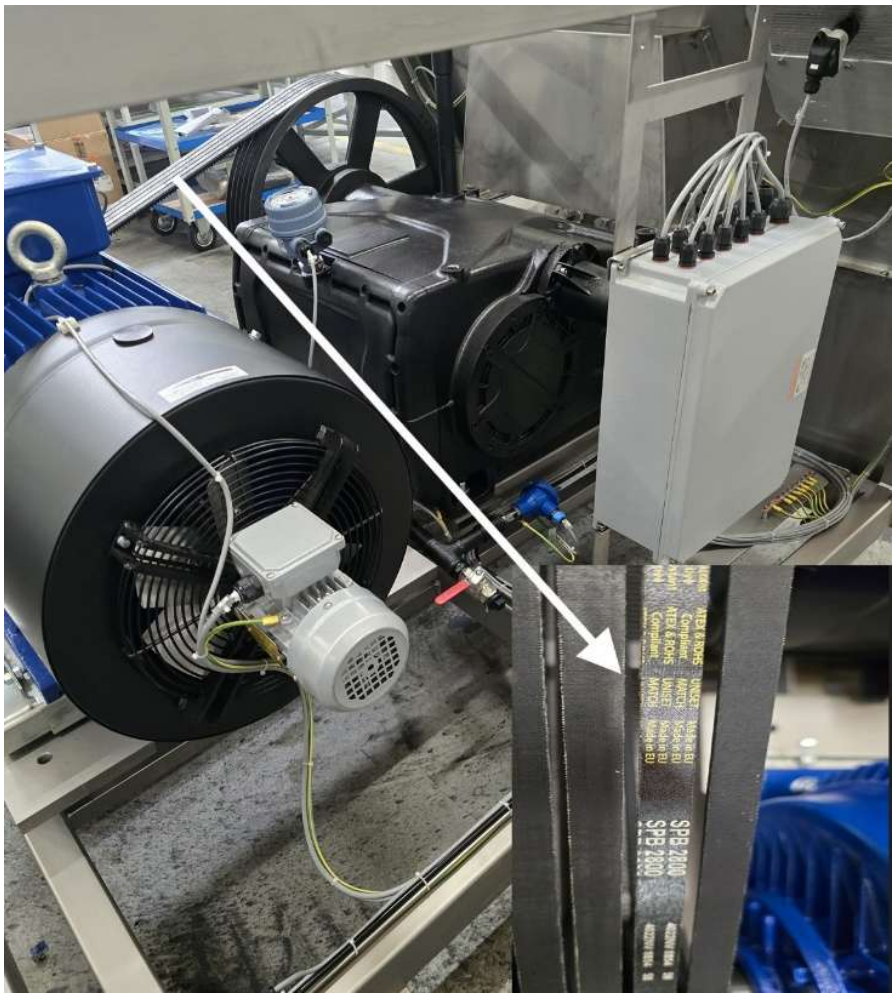
TM Prozesstechnik GmbH/ Distributor for Bertoli / INTERPUMP PROCESS TECHNOLOGY

Morier Str. 6a

23617 Stockelsdorf / Germany

www.tm-prozesstechnik.com

sales@tm-prozesstechnik.com



Interpump-Bertoli- Drive in Atex_20240904_Riemen-1a

#ATEX #HOMOGENIZERS #DRIVES

TM Prozesstechnik GmbH/ Distributor for Bertoli / INTERPUMP PROCESS TECHNOLOGY

Morier Str. 6a

23617 Stockelsdorf / Germany

www.tm-prozesstechnik.com

sales@tm-prozesstechnik.com