

# Replacing Rotary vacuum paddle dryer with BEW Conical Helix Blender Cum Dryer(CHBD) for Improving blending and Drying efficiency of Agrochemical Product

Agrochemical industry is a very vast field and deals with production and distribution of pesticides and fertilizers to increase the crop yields. Blending and Drying process is very crucial part in agrochemical industry.

In case of improper blending it will affect the quality of the product.

In case of drying, due to thermal stress the stability of product and its subsequent effect may get impaired.

Therefore, proper blending and drying is very important in agrochemical industry

## • Limitations with Existing Dryer.

One of the largest Agrochemical manufacturer was facing following problems with existing Rotary Vacuum Paddle Dryer.

I. Improper blending

II. High drying time

III. Agglomeration and lump formation

IV. 50 % of working volume

V. No 100 % discharge, High residence in Rotary Vacuum Paddle Dryer

## • Equipment.

Client took trial on BEW CHBD which consists of 2 pair of helix blade i.e. Inner and outer helix blades which are designed to move the material in four directions i.e. Inwards, Outwards and Up and Down.

External helix blade pulls the product from the side of the cone to middle and the inner helix blade pushes the product from middle to side. This creates the convective blending path.

The same helix blade pushes the material from bottom of cone to top and top material comes down by gravity.

Along with heated cone BEW helix blades are also provided with special heating arrangement due to which the product gets much higher effective heat transfer area.

BEW CHBD has centre discharge at the bottom of the cone.

Hence zero residence of Product.

### • Result

- i. Due to four directions blending in BEW Conical helix blender cum dryer there was uniformity in product with no agglomeration.
- ii. Batch capacity increased from 50 % working volume to 80 %.
- iii. Higher effective heat transfer area resulted in increase in drying efficiency and less batch time.
- iv. 100% discharge through bottom of cone, No residence of product.
- v. Ease of maintenance due to vertical setup.

### • Key Point

- i. No Agglomeration
- ii. Reduction in batch time
- iii. Decrease in power consumption
- iv. Increase in drying efficiency

### • Conclusion

BEW CHBD was found to be more suitable for Gentle Blending and Vacuum Drying using short cycle time for Agrochemical product  
Hence BEW CHBL has potential for blending and drying of agrochemical products.

### • Optional Features

- i. In compliance with cGMP and FDA guidelines.
- ii. Small pilot units which are skid mounted including drive system, the required instrumentation etc.
- iii. Equipment can be provided with the essential instrumentation as required by client for ease of data mining. They can be supplied with HMI/PLC/SCADA Systems, PLC controls, autonomous or slaved to DCS, MCC, compliance with 21 CFR Part 11 with Programmable operating procedures etc.
- iv. It can be provided with accessories like CIP system, Lump breaker, Sampling Valve etc.