

# Replacing Rotary vacuum paddle dryer with BEW Conical Helix Blender Cum Dryer 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,

Whereas 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

## · **Issues with Existing Dryer.**

One of the world's largest Agrochemical manufacturer was facing following issues 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 Make Conical helix blender cum dryer which consist of 2 pairs of helix blade i.e. Inner and outer helix blade which is designed to moves the material in four directions i.e. inwards, Outwards and Up and Down.

External helix blades pull 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.

Whereas 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 blade are also provided with special heating arrangement due to which the product gets much higher effective heat transfer area. BEW conical helix blender cum dryer has centre discharge at the bottom of the cone.

### • **Special Features**

- i. In compliance with cGMP and FDA guidelines.
- ii. Small pilot units are skid mounted including all drives, 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.

### • **Result**

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

### • **Key Point**

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

### • **Conclusion**

BEW CHBD was found to be 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.