

Case study:

Research upon Coating of lactose for inhaler products

Application:

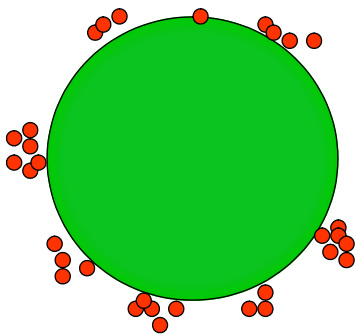
In order to improve the lung delivery of inhaler drugs, requirements are demanded by new small molecule or biotech therapeutic entities.

Furthermore an optimal bulk powder handling and metering has to be achieved.

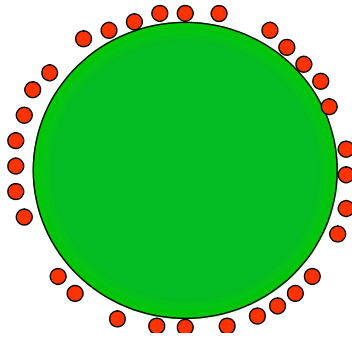
The active materials have to be coated on a carrier. The dispersion of the fine active material is critical.

These materials need to be developed, due to the high costs of the base materials small laboratory size equipment which is easy to scale up is required. Hosokawa has developed a Cyclomix with **a working volume to handle batches of 0,2 to 1 liter.**

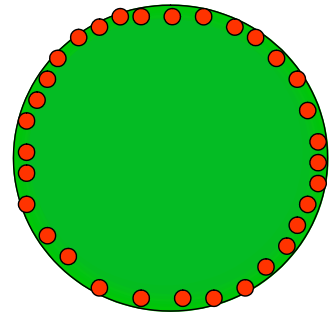
Due to the rolling effect in the Cyclomix a perfect single layer coating is obtained.



Coating with impact mixer



Coating with high shear mixer



Embedment with high shear mixer

For scaling up, our basic rules confirmed by our experiences are used.

Product capacity	:	0,2 -1 litre
Motor	:	1,1 kW
Speed (50 Hz)	:	2000 RPM
Weight	:	~50 kg

Double jacketed vessel AND cover for heating and cooling
 Tri-clamp connection for easy cleaning (cover/vessel; vessel/outlet; inlet)
 PT 100 on vessel to measure the product temperature.

Conclusion:

The Cyclomix is a perfect technology for the pharmaceutical industry, creating a optimal coating even for small batches. **Reliable scaling-up data are available.**