

360° COMPETENCE IN PELLETS: An overview on process technologies

CORE PELLETS

DRUG LAYERED CORE PELLETS

MATRIX CORE PELLETS

structure of · core pellets · coated pellets

Glatt

Technology

process mode

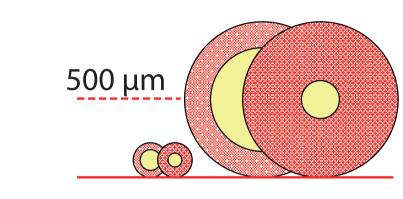
solid starting

processing of

solvent(s)

API/coating liquid

material



Wurster (bottomspray)

batch

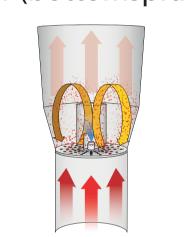
starter pellets ≥ 100 µm

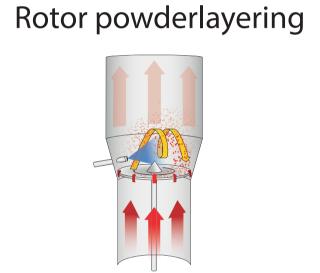
from a liquid

(solution, suspension, emulsion, melt)

water, organic solvent(s)

strength/drug load





batch

starter pellets ≥ 100 µm

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as powder

water, organic solvent(s)

strength/drug load

sensitive to moisture

~ 300 - 400 µm

micropellets possible

preferred technology

for medium/high dosed

moisture sensitive APIs

~0,01 - 10%

~10-50%

~50 - 80 %

~80 - 100 %

API dosage

low ~0,01 - 10% medium ~10-50% high ~50 - 80 % • • • • very high ~80 - 100% na

properties of API

chemically stable in water, organic solvents

smallest pellet size achievable

~ 150 - 400 µm micropellets possible

comment

preferred technology for drug layering with chemically stable APIs

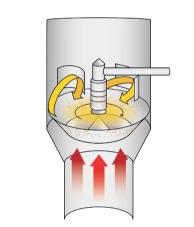
high potent/ containment feasibility

smart high potent processing approach



CPS pelletisation

500 μm



batch

microcrystalline cellulose powder API etc.

as powder

water

strength/drug load

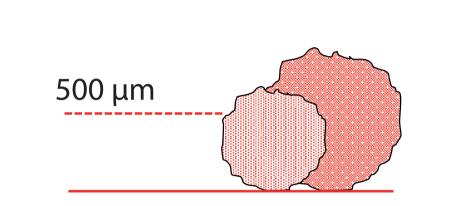
• • • •	~0,01 - 10%
• • • •	~10-50%
• • •	~50 - 80 %
na	~80 - 100%

chemically stable in water

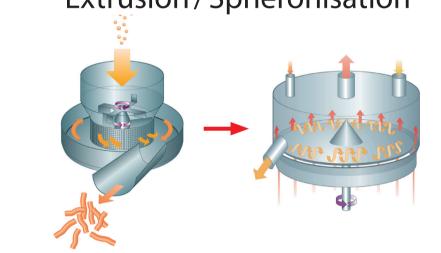
~ 150 - 400 µm micropellets possible

high impact of physico-chemical properties of API on the process quality

(sticking of wetted API)



Extrusion/Spheronisation



batch/continuous

microcrystalline cellulose powder API etc.

wetted mass of API + microcrystalline cellulose water, organic solvent(s)

strength/drug load

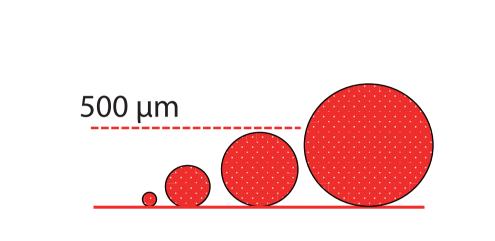
• • • •	~0,01 - 10%
• • • •	~10-50%
• • •	~50 - 80 %
na	~80 - 100%

chemically stable in water, organic solvents

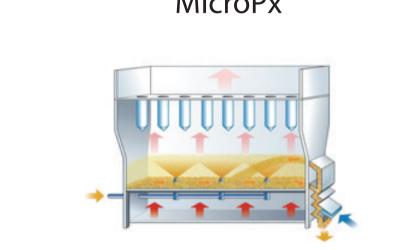
 $> 700 \, \mu m$ micropellets **NOT** possible

often imperfect sphericity and surface smoothness

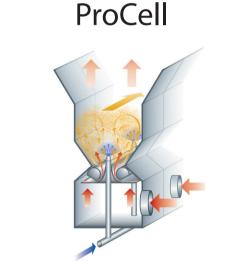
potential impact on coating quality and performance



MicroPx



ProCell



continuous

no

from a liquid (solution, suspension, emulsion, melt) water, organic solvent(s)

strength/drug load

• • •	~0,01 - 10%
• • • •	~10 - 50 %
	~50 - 80 %
	~80 - 100%

strength/drug load

•	•	•			~0,01 - 10 %
•	•	•	•		~10-50%
•	•	•	•	•	~50 - 80 %
•	•	•	•	•	~80 - 100%

chemically stable in water, organic solvents, melt

> ~ 150 - 400 µm micropellets possible

usual drug load: 90 - 95%

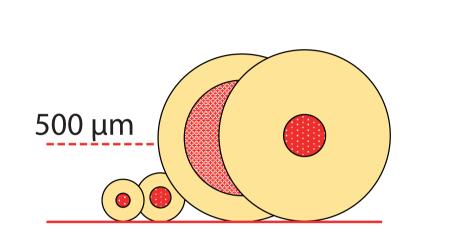
preferred technology for high drug loaded micropellets

usual drug load: 90 - 95%

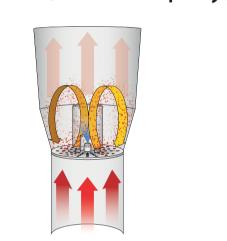
preferred technology for high drug loaded pellets including temperature sensitive API

smart high potent processing approach

COATED PELLETS



Wurster (bottomspray)



batch

coating liquid:

 \cdot solution

dispersion

· melt

solvents:

·water

· organic solvent(s)

~ 200 - 500 µm coated micropellets possible

preferred technology

for all coating applications

· controlled drug release

· taste masking

· seal coating · pH dependent coating

· immediate release top coat

smart high potent processing approach