PGSS™-Technology
(Particles from Gas Saturated Solutions)

CPF™-Technology
(Concentrated Powder Form)

Where innovation meets experience

High pressure equipment design for PGSS™/CPF™

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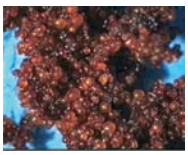
natex
PROZESSTECHNOLOGIE

The Process

A gas (CO_2) is dissolved under high pressure in a liquid or melt and rapidly expanded. Fine droplets are formed, which are either loaded onto a concurrently added carrier (CPF™) or solidify in the spray tower (PGSS™). The products are in both cases free flowing powders. Gas consumption is low (normally 0,1-2 kg gas/kg powder). The inert gas atmosphere and the very low temperatures after the nozzle (-10°C to 0°C) allow gentle processing of sensitive substances.

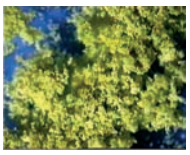
CPF™-Products

liquids loaded on carriers



paprika
on extraction residue

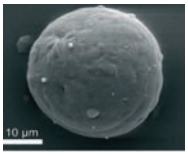
turmeric
on starch



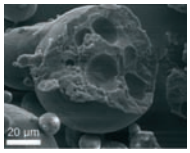
celery
on silicic acid

PGSS™-Products

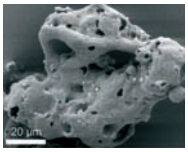
morphologies (pure substances)



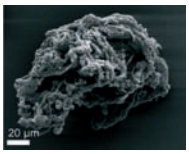
spheres



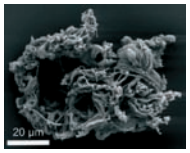
porous spheres



porous particles



micro foams



fibres

Powder Composites

open composites (PGSS™ and CPF™)

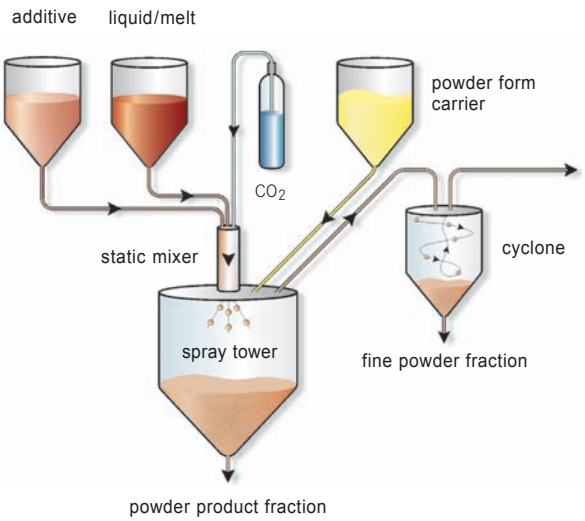
adsorption

agglomeration

impregnation

closed composites (PGSS™)

encapsulated liquid



CPF™ Technology

CPF™ (**C**oncentrated **P**owder **F**orm) technology is a high pressure spraying process creating powders with liquid loads up to 90 %. The achievable load depends on the bulk density of the carrier. A wide range of liquids from low to high viscosity can be processed using carriers with particle sizes from 5 µm to 2 mm and bulk densities from 50 to 1400 kg/m^3.

PGSS™ Technology

PGSS™ (**P**articles from **G**as **S**aturated **S**olutions) technology produces powders from melts. The molten substance is mixed with the dense gas, which reduces the viscosity. After expansion into a spray tower tiny droplets are formed, which solidify almost immediately, because the gas cools down due to the Joule-Thomson effect. Morphologies of the particles depend on processing parameters. Apart from powders from pure substances also open and closed composites can be produced.

High Pressure Equipment Design

NATEX has been active in high pressure technology for several decades. Based on this know-how PGSS™/CPF™ equipment is designed and supplied covering all special requirements of the customers.

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