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PROCESS TECHNOLOGY FOR THE COSMETICS INDUSTRY

EMULSIONS, SUSPENSIONS, COLLOIDAL MIXTURES, ETC.

Innovative technologies for the cosmetics industry

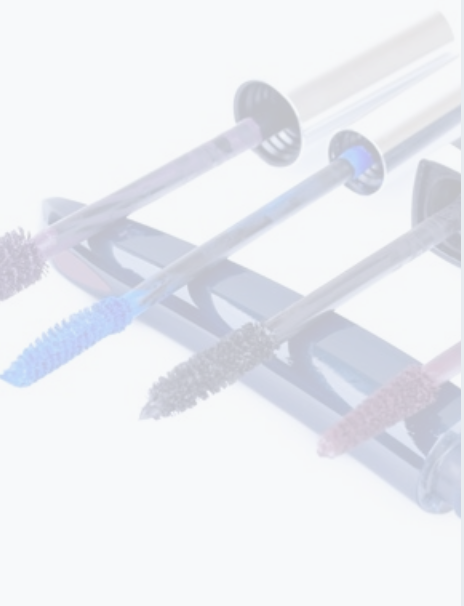
/// Machines from a laboratory and pilot scale to an industrial scale

The cosmetics industry is facing challenges due to constantly changing trends as well as health and hygiene restrictions. Our aim is to support you in overcoming these challenges with our wide range of innovative technologies.

As a globally active company with over 100 years of history, we are true experts in process technology for the cosmetics industry. We have incorporated decades of experience from working with our customers into our equipment. Our innovative process solutions for a wide range of requirements include: emulsions, suspensions and colloidal mixtures.

What are you waiting for? Develop new products and optimize your process or recipe: We will provide you with a process technology solution and promise outstanding dispersion quality, with a high degree of automation, if required. Thanks to identical process parameters, reliable scaling-up from a laboratory to a production scale is guaranteed.

With the help of our machines and plants, nourishing and aesthetic cosmetics such as face creams, shampoos, foundations, mascaras, lipsticks and perfumes can be manufactured.



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Liquid-liquid mixing processes

/// Efficient production of stable emulsions

Liquid-liquid mixing: Cosmetic creams are emulsions - involving the mixing together of at least two liquids that are normally difficult or impossible to mix. A stable emulsion can be achieved with IKA dispersers. They work using a rotor-stator system that ensures very high shear forces with a low energy input. The dispersal phase is thus distributed very finely and evenly throughout the continuous phase.

magic LAB: Mixing, dispersing and wet milling of substances is possible with this multifunctional inline laboratory device. magic LAB is optimally suited for the development of recipes within the laboratory.

Ultra Turrax UTC: The batch disperser is used for producing simple emulsions. The UTC is designed for mounting onto the vessel lid or a stand.

Application image: Foundation

Diluting liquids: If the process objective is to continuously incorporate one substance homogeneously into another, a **DPV type dilution plant** is recommended. Using dosing pumps, the substances to be mixed are fed into an inline machine and only come together in the mixing chamber. This avoids unwanted reactions such as immediate clumping or the formation of foam. This process is also extremely effective, for example, when very small quantities of fragrance are to be incorporated into the product feed for scented care products or perfumes.

DPV 7,000 for inline dilution of SLES (ether sulfate)

Liquid-solid mixing processes

/// Dispersers for suspensions

Solid-liquid mixing: To produce a suspension, solids that are not soluble in liquids are very finely distributed in the liquid feed. The smaller the solid particles and the more uniform the particle sizes, the more stable the mixing result.

For example, a base cream serves as a liquid template in the production of a final product. By homogeneously adding a finely ground solid to this base, a pasty consistency is achieved. IKA inline dispersers generate high shear forces and achieve a very narrow particle size distribution.

Dispax Reactor DR:
This high-performance dispersing machine with 3 rotor-stator stages is used to produce stable emulsions AND suspensions.

UTE batch disperser:
High-performance dispersing machine for accelerating dissolving processes. Flexible batch sizes can be achieved by installing it in the bottom of the vessel.

magic PLANT inline:
The laboratory-sized process unit is ideally suited to homogeneously mixing masses that are still pourable. This makes it easy to develop complex cosmetic products.

Fast, homogeneous incorporation of powders into liquids:
This is what the CMX inline disperser offers. Operated within a recirculation process, the liquid circulates constantly through the mixing vessel and the connected pipelines. This circulation causes a strong negative pressure that sucks in the solids. In the highly turbulent mixing chamber, rotor-stator tools disperse the liquid and solids homogeneously. Due to the multi-stage arrangement with two dispersion stages, very high suction rates are achieved and the tools can be adapted according to the product and process target. Optionally, the CMX can be designed as a skid on rollers. This modular and flexible application ensures that the process technology is fast, simple and cost-effective. For contract manufacturers with constantly changing requirements and recipes, the CMX is the perfect cosmetics manufacturing partner.

CMX 2000 10 with sack chute

Compact plants for the cosmetics industry

/// Master Plant MP and
Standard Production Plant SPP process plants

With the Master Plant MP and the Standard Production Plant SPP process plants, IKA offers compact solutions for manufacturing high-quality emulsions and suspensions in a batch process.

At the heart of both plants is the DBI dispersing machine, which directly sucks solid and liquid ingredients into its dispersion chamber. The DBI causes the product to circulate over a bypass line and the mixing vessel.

Benefits of compact plants:

> Temperature control via double jacket
> Can be combined with a melting tank
> Automation with recipe management
> Batch traceability
> CIP also possible for products with a high pigment content

MP 1000

SPP 500

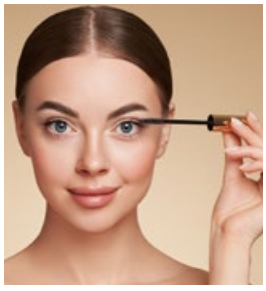
Application example

/// Mascara production

The system consists of an IKA Master Plant MP connected to a melting tank, for efficient mascara production.

The waxes, fats and stearates are loaded into the preheated melting tank and stirred until they are completely melted. At the same time, the processing of the water phase begins in the MP. The color pigments, emulsifiers, other solids and aqueous liquids are incorporated and dispersed into the water phase by means of the DBI dispersing machine.
As soon as both phases - the water phase in the MP and the fat phase in the melting tank - have reached the same temperature, the transfer from the fat phase into the water phase by the DBI dispersing machine begins. Because both phases are brought together directly in the dispersing chamber, a fine emulsion is formed immediately.

After the cooling sequence, the temperature-sensitive additives are incorporated by the dispersing machine. No additional discharge pump is required; even the highest viscosities are reliably handled with the DBI.



The DBI high-performance dispersing machine ensures high-quality, stable emulsions and suspensions.

Technical data

/// Machines & plants for the cosmetics industry

Product type	Flow rate [l/h] /[kg/h]*
DISPAX REACTOR DR	2,500 - 125,000
DISPAX REACTOR DRS	700 – 40,000
CMX	1,500 - 200,000
magic LAB 2000/03	100
LABOR PILOT 2000/04	500
PROCESS PILOT 2000/04	500
CONIKA sieve mill	500 – 4,000*
PILOTINA dry mill	60 - 80*
DPV dilution plant	3,000 - 15,000

* All figures water-based and dependent on product properties.

CMX 2 000/20

IKA Process Pilot 2 000/04

Product type	Batch size [l]
ULTRA TURRAX UTC	30 - 6,000
ULTRA TURRAX UTE	20 - 25,000
Master Plant	10 – 4,000
magic PLANT inline	2
Standard Production Plant SPP	8 – 4,000

MP 10

MP 4 000

SPP 25

SPP 4 000

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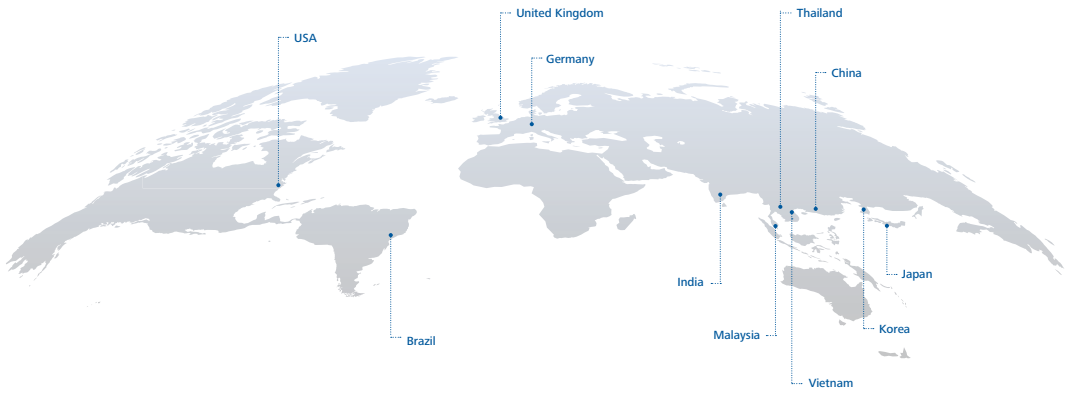

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202303_Process Technology for the cosmetics industry_EN_94000205