IKA® Mixing and Processing Technology

The IKA® Process division offers turnkey solutions and state-of-the-art manufacturing options. IKA® solutions include: dispersing machines, homogenizers, agitators, jet mixers, kneaders, vacuum dryers, and process plants, all manufactured to IKA® high product quality standards. Consulting, design and execution of complex projects as well as proactive after-sales service complete the IKA® solution portfolio.

Process engineering that will inspire you! Benefits of IKA® machines and plants

- GMP Compliant
- Flow ranges from 0.26 to 1,500 GPM
- Energy and time efficient
- Reproducible mixing quality and results
- Reliable and predictable scale-up
- 100% inspection of components
- API 610 Compliant
- Custom made to meet electrical standards such as NFPA, NEC, CSA for hazardous locations
- CRN components available
- Full vacuum to 300 psi
- ASME BPE-2009 Bioprocessing Equipment

For more information please visit www.ikaprocess.com
High Shear Mixing

Blending
Wet – Grinding
Emulsifying
Homogenizing
Dispersing
Suspending
De-Flaking
Solid / Liquid Dispersing
Solid / Liquid Blending
Colloid Milling
Droplet Size Reduction
Particle Size Reduction
Pulping
Neutralizing
Polymerizing
Dissolving
Pulp Disintegrating
Extracting
Shear – Pumping
Gas Injection
Reaction Acceleration
It all starts in the Lab…

Modular construction: Labor / Process Pilot -
A series of different high-shear mixing and size reduction modules, adapted to the application. This makes the Labor / Process Pilot ideal for the requirements of any industry.

UTL
single-stage module for homogenizing of emulsions and suspensions
It all starts in the Lab…

**NEW!**
High-Pressure-Homogenizer module with up to 29,000 PSI.

- **DRS**
  2-stage disperser for emulsions in the sub-micron range and finest suspensions

- **DR**
  3-stage disperser for applications with high shear requirements

- **MHD**
  continuous in-line proportional incorporation of powders into liquids

- **MK**
  colloid mill for extremely stable emulsions and suspensions

- **CMS**
  powder / liquid mixer creates a vacuum that draws in the solids and blends, all in one step

> Labor-Pilot

> Labor-Pilot

NEW!
The DISPAX REACTOR® is a high shear, three stage dispersing machine used for the production of micro-emulsions and very fine suspensions. Three rotor-stator combinations (generators) in a series produce a fine droplet or particle size, with a very narrow distribution. The generators can easily be interchanged, offering the ultimate in flexibility and processing.

**Generators available:**
- Shear-Pump
- Coarse (2G)
- Medium (4M)
- Fine (6F)
- Superfine (8SF)

**APPLICATION**
- Neutralization & PH adjustment
- Salt solutions
- Edible oil refining & degumming
- Polymerizations
- Pesticides
- Herbicides
- Reaction
- Enhancements
- Microencapsulations
- Viscosity Control
- Fuels

...and ends up in Production,...
...or as part of an IKA® System,...

> IKA® MHD Series: Powder / Liquid Dispersing

Continuous
> Blending
> Dilution Plants
> Inline Reaction

> Batch Solid / Liquid Dispersing Plants
> Semi-Solids Plants

> Suspension Plants
Fumed silica is a very light dusting powder used in a wide range of products from cosmetics to agro-chemicals. Fumed silica, also referred to as Aerosil® (registered trademark of Degussa) or Cabosil® (registered trademark of Cabot Corp.), is often used as a filler, stabilizer, or viscosity control agent. The main challenges to processing fumed silica are to wet it out and achieve full viscosity. IKA® has extensive experience processing fumed silica and a number of solutions to meet any manufacturer needs.

Advantages of IKA® mixers for dispersing Fumed Silica

Dusting eliminated - IKA® offers several designs to incorporate fumed silica directly into the liquid. The powder can be vacuumed directly from a bag, conveyed from a super-sac, or we can work with your engineers to devise a system customized to your individual process.

Improved vessel cleanliness - Utilizing an IKA® inline powder-liquid mixing system will eliminate scum lines on vessel walls, improving cleanliness and eliminating wasted raw materials.

Complete ingredient functionality - Many companies claim to wet out fumed silica, but substantial shear is often required to achieve full activation and viscosity. Only IKA® offers mixers capable of dispersing fumed silica and incorporating this level of shear.
Resins

Resins are materials commonly used in the manufacture of lacquers, glues, plastics, and a wide range of other items. They are typically hard solids, which must be dissolved in a solvent base or wet milled in an aqueous system. Wet milling is desired to avoid the heat and dust issues which are inherent in dry milling. This process is often time consuming as operator exposure to solvent fumes must be limited. IKA® in-line high shear mixers offer customers a safe and efficient means to dissolve or grind any resin.

Advantages of IKA® Mixers for dissolving /wet-milling

Reduced Processing Time: Conventional methods may take hours to dissolve a resin into a solvent, thus tying up valuable production resources. IKA® mixers, through the use of innovative generator (rotor/stator) technology, rapidly reduce solid particles, exposing a large surface area of the resin to the solvent. This high speed, high shear action rapidly dissolves the solids and reduces processing times.

Single Source Responsibility: IKA® Works is capable of supplying complete systems including tanks, scrape surface agitation (for high viscosity blends), high shear mixers, and controls.

Improved Operator Safety: Solvent emissions and fumes are often a hazard to operators. IKA® in-line mixers are supplied with double mechanical seals and are also offered with options to feed liquid or solid materials directly into the product without operator exposure.

Improved Product Quality: IKA® Works offers both a tight particle size distribution and rapid processing while maintaining competitive costs. This is made possible due to the innovative modular concept of the IKA® 2000 Series Mixers.

APPLICATION

Resins
Rubber Compounds
Plastic Compositions
Porcelain
Graphite Mixtures
Silicone Rubber
Suspensions

Titanium Dioxide

Titanium Dioxide is a white pigment used in a range of products from paint to sun tan lotion to tablet coating. It is generally supplied as a pre-micronized powder, but some particle size reduction may be required. Also, the powder will often re-agglomerate when added to a liquid through conventional methods. IKA® mixers are designed to ensure a rapid dispersion, tight particle size distribution, and agglomerate free end product.

Advantages of IKA® mixers dispersing & Grinding TiO₂

Decreased Processing times: The high speed, high shear mixing of an IKA® mixer ensures a rapid, agglomerate-free dispersion of the TiO₂ powder. The CMS and MHD powder /liquid mixers also add the powder directly into the liquid stream, often in a single pass.

Improved product quality: IKA® mixers ensure that any agglomerates are rapidly broken down and the powder evenly dispersed throughout the liquid. The result is improved gloss and opacity properties, which are directly related to the quality of the dispersion.
Carbon Black

Carbon black, as the name implies, is a black pigment. The powder must often be incorporated into a liquid and then ground to a required particle size. The powder addition is commonly done in a dedicated area to avoid coloring everything in the main production area. IKA® Works offers equipment capable of grinding carbon black down to <1mm while sealing the powder from the remainder of the production area.

Advantages of IKA® mixers for dispersing/grinding carbon black

**Improved cleanliness:** Utilizing an IKA® MHD powder/liquid mixer allows customers to disperse the powder directly from storage into the liquid without handling.

**Improved Product Quality:** Carbon black can be ground to 8 Hegman with an IKA® Mixer, beyond the level of other high shear manufacturers. Also, IKA® mixers are known for their extremely tight particle size distribution.

**Reduced Processing time:** Customers are able to produce results which traditionally require low throughput media mills, in a fraction of the time with an IKA® mixer.
The IKA® Philosophy:

IKA® is one of the leading manufacturers of mixing and dispersing machines, employing approximately 450 people worldwide with 70 employees at the Wilmington, NC facility. 10% of the total personnel are involved in the field of research and development. An IKA® product is a combination of the latest innovative technology and the highest quality. The use of an IKA® machine or system must be economically justified and guarantee a constant product quality with reproducible results over a long period of time. IKA® carefully establishes a clear plan to determine which machines or systems are best suited for each and every application.

The IKA® philosophy is:

"The product result and the production time have to be matched in order to achieve the optimum result".

Make use of our many services:

- IKA® designs complete production plants
- IKA® proudly manufactures in the USA
- IKA® conducts trials and product development
- IKA® plans and conducts mechanical, electrical, and pneumatic installations
- IKA® conducts repair and service work on site or at the IKA® facility in Wilmington, NC
- IKA® offers spare parts service within 24 hours
- More info at www.ikaprocess.com
IKA® Process Technology: Superior Quality, Innovative Design

IKA® uses high quality materials for exceptional mechanical strength and corrosion resistance in all process machinery, ensuring first class quality. In addition, by working closely with the customers and research institutions, IKA® is continually developing new technologies and applications. This partnership allows IKA® to deliver the most innovative solutions for the process industry. The IKA® commitment to continuous research and development, provides the basis for the IKA® philosophy: superior quality and innovative design.

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