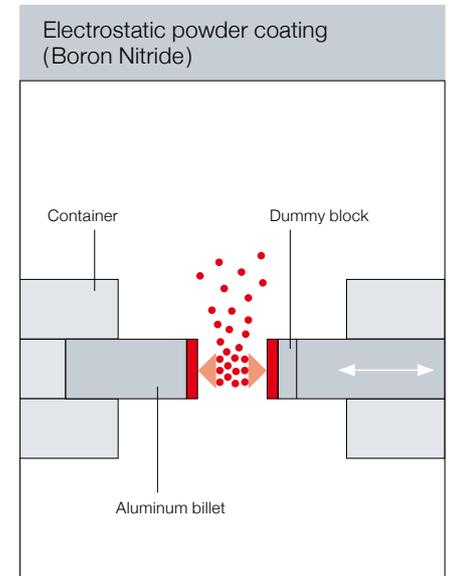




EKamold® BORON NITRIDE RELEASE AGENTS FOR ALUMINUM EXTRUSION

EKamold® boron nitride products provide indispensable assistance at critical points in the extrusion process, ensuring a smooth process flow and producing immaculate profile surfaces.



The ESK-patented dry electrostatic application provides very efficient consumption and short cycle times.

Processing

After steel, aluminum is the most widely used engineering material. One of the most economical processes for shaping aluminum alloys is extrusion, offering excellent freedom of shaping and high productivity.

At critical points in the extrusion process, EKamold® boron nitride products provide indispensable assistance, ensuring a smooth process flow and producing immaculate profile surfaces.

- Electrostatically applied EKamold® boron nitride powder is the ideal release agent between the aluminum dummy block and billet.

- EKamold® Extrusion spray coated surface of the die bearing ensures maximum precision and a clean appearance on the profile surface.
- EKamold® W boron nitride coating on the shear blade prevents sticking and ensures a perfect cut at the end of the extrusion cycle.

The improvements in productivity and quality can benefit extrusion operations.

Properties

The starting material for extrusion is a cylindrical aluminum billet. Individual sections of these blocks are heated to 450°C and forced by a stem through the die to produce hollow or solid profiles. Aluminum alloys have a tendency

to stick at these temperatures. It is therefore necessary to apply a release agent or lubricant between the dummy block and the aluminum billet.

Conventional release agents, such as oils, greases and carbon black contaminate the product and are difficult to use. Hexagonal boron nitride from ESK offers excellent properties as release agent and lubricant and is easy to apply.

ESK developed EKamold® boron nitride powder for the aluminum extrusion. It is applied electrostatically, in dry form without a carrier, to the dummy block or of the end face of the aluminum billet.



Advantages

- Outstanding release properties and lubrication
- Improved safety and cleanliness in the press area:
 - no open gas flames
- Economical powder consumption
- Reduced coating frequency:
 - shorter downtimes
- Increased productivity
- Optimized product quality
- Not harmful to health

EKamold® Extrusion

Spray

The inner surface of the extrusion die is essential to the quality and the decorative appearance of the profile that is produced. EKamold® Extrusion is an alcohol-based liquid boron nitride release agent developed by ESK for coating die bearings, to extend their lifetime.

EKamold® Extrusion is available as an aerosol, and is preferably applied to the bearing after correction.

On the coated surface, the binder system provide a very highly adhesive, intact release and lubricant film, which is not water soluble and therefore offers adequate corrosion protection during storage. From room temperature onwards, a low-adhesion boron nitride film remains, which ensures good lubricating and release properties even at high temperatures.

The surfaces dry rapidly with no need for heat treatment. The workplace should be well ventilated during application due to the ethanol.

Formula EKamold® Extrusion

Spray

- 12 % boron nitride powder
- Binder: Bentonite
- Solvent: Ethanol
- Propellant: Propane and butane

EKamold® W

Coating

EKamold® W is available as a coating and can be sprayed or brushed on. It contains no binders, and therefore the surface is coated with pure boron nitride particles, with outstanding release and lubricating properties over a wide temperature range.

The coating also possesses good thermal conductivity, is electrically insulating and free of hazardous components.

The shear cuts off the discard that remains after the end of the extrusion cycle. The sprayable water-based EKamold® W boron nitride coating ensures that the discard does not adhere to the shear blade, and a neat, smooth cut surface is produced. This greatly reduces the risk of entrapped air. As a consequence, the process is safe and runs smoothly, right up to the final operation.

Formula EKamold® W

Coating

- 10% boron nitride powder
- Dispersion aids
- Water

Specifications

Product Data	EKamold® Boron nitride powder	
Chemical formula		BN
Crystalline structure		hexagonal
Specific weight	[g/cm ³]	2.25
Melting point	[°C]	2,700 - 3,000 (decomposes)
Electrical resistace	[Ω cm]	> 10 ¹²
Purity (B+N)	[%]	> 98.5
Oxygen (O ₂)	[%]	< 1.5
Boron oxide (B ₂ O ₃)	[%]	< 0.5
Carbon (C)	[%]	< 0.1
Metallic impurities	[%]	< 0.2
Mean grain size d ₅₀ (primary particles)	[µm]	2
Specific surface area (BET)	[m ² /g]	5 - 15
Oxidation resistance	[°C]	900