NEKOTE GRAPHITE RELEASE AGENTS

GRAPHITE RELEASE AGENTS FOR TWIN-ROLL CASTING APPLICATIONS

Pyrotek offers two different Nekote products to prevent an aluminium sheet from sticking to the roll shells. Both products are exceptionally well dispersed with ultra-fine graphite particles suspended in water.

Nekote products are applied to the roll shells by a traversing or oscillating spray system. The rolls should be coated prior to caster start-up. The speed and amount of spray depends on multiple customer process variables, including width of the roll shells, casting speed, alloy, cast sheet thickness, and roll shell material and temperature. Agitation prior to and during use is important to maintain a homogeneous dispersion of the graphite particles in the water. Nekote products also contain a defoaming agent, which may rise to the top of the mixing container during use.

NEKOTE-35

Nekote-35 is the first generation of Nekote products, and is used primarily on older, first-generation casters with slower casting speeds. The graphite particles in Nekote-35 will begin to fall out of suspension over time, therefore, the concentrate should be shaken periodically when stocked to prevent flocculation.

NEKOTE-35XL

Nekote-35XL is an advanced generation graphite release agent. The product has the same chemistry as Nekote-35 but undergoes a final, separate production process that keeps the graphite particles in suspension much better than Nekote-35 and without becoming thixotropic. Nekote-35XL can be used on all types of casters and aluminium alloys.

COMPOSITION

	Nekote-35	Nekote-35XL
Sediment	Hard packs	Very soft, if present
Typical Particle Size Median–µm*	2.0–4.0	2.0–3.0
Diameter of 90% of particles–µm	<10.0	<4.0
Dispersion**	Good	Good
Solids, Weight %–Moisture Balance	21.5–22.5	21.5–22.5
pH	9.0–10.0	9.0–10.0
Brookfield Model LVDV Viscosity–cP	20–100	80–200

** Particles are measured on a Horiba LA 950*
*** Dispersion is viewed under an optical microscope at 1000 times magnification*

BENEFITS

- Easy to use
- Produces a smooth, tenacious, dense coating
- Well-dispersed with ultra fine graphite particles
- Prevents molten aluminium from sticking to roll shells
- Faster casting speeds and higher production yields
- High dilution ratio

Pyrotek

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AVAILABILITY
- 0.5 gal (4.4 lb) jugs
- 1 gal (8.8 lb) jugs
- Available in 2.0 litre packaging in some regions

RECOMMENDED DILUTION
Pyrotek recommends a starting dilution ratio of 1:110 (1-part Nekote to 110-parts water). The concentration of graphite depends on many different casting parameters. If sticking occurs, increase the amount of Nekote concentrate.

PRECAUTIONS
Nekote is a water-based product that must be kept from freezing. Do not contaminate the product with solvents, acids, etc. Each Nekote container displays a white label with the date-of-manufacture and lot number. The product's shelf life, in the original, sealed container, is one year from the manufacturing date. After the original seal is broken, Nekote should be put into use immediately and consumed completely. Diluted Nekote should be properly covered to prevent carrier loss and environmental contamination.

USE INSTRUCTIONS
1. Vigorously shake the Nekote jugs prior to mixing Nekote with water. Start the mixer or agitator in the water tank. Use a low shear mixing blade only.
2. Slowly pour the Nekote concentrate into the mixer vortex to gain good dispersion. The mixing and delivery tanks should be constantly agitated during use.
3. Ideal mixing speed is between 325-350 RPMs.
4. After mixing is complete, keep the diluted tanks covered to prevent debris from entering the tank, which could clog the spray nozzles.

SPRAY SYSTEM CLEANLINESS
Spray system cleanliness is vital to successful Nekote usage. Bacteria and fungus buildup within the spray system can break down the Nekote binder system, resulting in agglomerations and cast sheet defects. To avoid this, proper spray system cleaning practices should be followed:

- A mild alkaline cleaner with an effective biocide package such as Renoclean SGC-62 should be used after each casting campaign.
- Avoid the use of alkaline or acidic cleaning solutions, such as caustic soda (sodium hydroxide) or potash (potassium hydroxide), as these can negatively affect the pH balance of Nekote and break down the binder system.
- Thoroughly flush system with water prior to introducing Renoclean or similar cleaning solution.
- Use a 5% Renoclean solution and circulate through the entire system for a minimum of one hour. If circulation through the system is not possible, allow for the solution to sit and soak all spray system parts for a minimum of one hour.
- Thoroughly flush the entire system with clean water after Renoclean usage.

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