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Surface Refinement Coatings for Ixef® Polyarylamide

This bulletin presents solutions for the following:

- Deposit formation (e.g. change in degree of gloss)
- Wear resistance
- “Dry” machining (lubricant-free operation)

As a prerequisite, harden tool surfaces with the appropriate heat treatment.

Figure 1: Tool surface topography



Uncoated

BALINIT® A-Coated

BALINIT® PVD Coating

All Balinit® coatings are characterized by hardness and chemical resistance.

Hardness

BALINIT® coatings are harder than comparable steel qualities such as 1.2516, 1.2842, 1.2767, 1.2343, 1.2344, 1.2083 or 1.2379 (hardness: 50-62 HRC or 510-760 HV). (Table 2)

Abrasion resistance is very high. Note that all coatings are deposited with a thickness of approximately 5 µm. Gentle handling is therefore required during maintenance.

Chemical Resistance

All of the coatings have excellent chemical resistance. The coatings are not attacked by acids or alkalis. The corrosion resistance of coated surfaces is dependent on:

- Base material used
- Coating system

Figure 2: Topography of synthetic components roughness, degree of gloss and perceived color

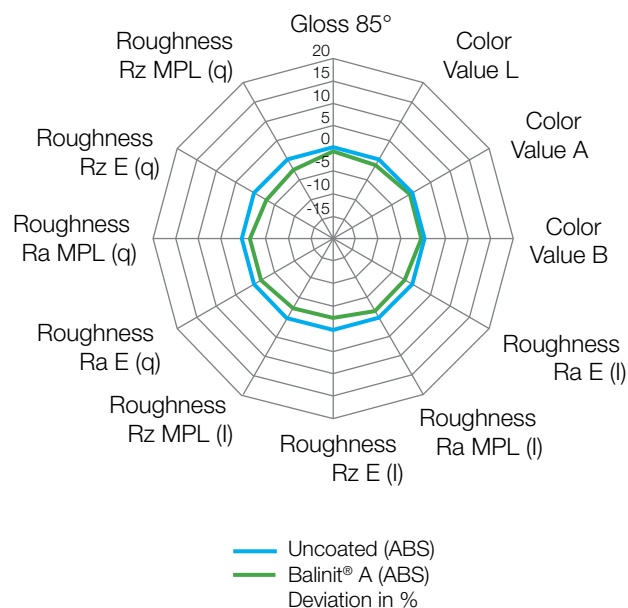


Table 1: BALINIT® coatings

	Shaping	Moving Side
Coating	BALINIT® B	BALINIT® C
Recommended steel	1.2343	Hardened steel
	1.2344	
	1.2379	
	Similar PM steel	
Heat treatment	3 x 520 °C (968 °F) Hardened and annealed	3 x 260 °C (500 °F) or 3 x 520 °C (968 °F) Hardened and annealed
Advantages	Reduced deposit formation lowers maintenance costs. Lower friction makes long lasting lubricant-free machining (dry-run) possible. Provides scuffing protection.	

Cleaning

Mold cleaner, “oven spray”, or ultrasonic cleaning methods are usually all that is required. Never use coarse (rough) whetstones or emery cloth.

If deposits or contamination has to be removed, please use diamond paste (1 µm to 3 µm) or polishing cloth (1,200) and petroleum.

Only use blasting techniques as a last resort. If unavoidable, use clean glass beads and a low operating pressure.

Table 2: BALINIT® coatings hardness comparison

Coating Version	Hardness (HV)
BALINIT® A	2,300
BALINIT® B	3,000
BALINIT® C	1,000–2,000
BALINIT® Cast	1,850
BALINIT® D	1,750
BALINIT® Futura	3,000
BALINIT® X.Treme	3,400

Welding

All BALINIT®-coated tools can be directly welded using arc-welding methods. No reduction in the quality of the welded result is expected. The coating must be partially removed if resistance welding methods are used.

Grinding

Works with well-dressed, sharp and hard grinding-discs because of the hardness of the coating. The cut (feed motion) must be greater than the thickness of the coating to prevent the disc from “slipping” over the coating (chatter marks).

Erosion

Erosion methods can be used on all BALINIT® coatings. It is possible to partially erode coated surfaces without affecting the degree of gloss.

Photo Etching

The coat must be removed when using this method.

De-Coating

All BALINIT® coatings can be removed from steel by Balzers. The surfaces are generally not affected. Please contact Solvay for more information.

www.solvay.com

SpecialtyPolymers.EMEA@solvay.com | Europe, Middle East and Africa

SpecialtyPolymers.Americas@solvay.com | Americas

SpecialtyPolymers.Asia@solvay.com | Asia Pacific

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