Angular Stainless Steel Abrasives Compared to Disposable Blasting Media

Choosing the right blasting media is crucial for effective surface treatment and long-term corrosion protection. Disposable blasting media such as corundum, glass beads, slag or garnet often appear to be a cost-effective solution. However, reusable blasting media, such as the angular stainless steel blasting media presented here, can offer a wide range of advantages.

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The blasting media used plays a key role in blasting. For cost reasons, disposable blasting media are often used. These often consist of mineral materials that shatter on impact with the workpiece and have a limited service life of two to eight cycles. These short service lives not only lead to frequent refilling, but also to heavy dust generation during blasting as well as high costs for disposal and wear and tear on the blasting equipment.

Challenges in the use of disposable blasting media

Corundum is one of the most commonly used disposable blasting media. It has a high hardness. This contributes to considerable equipment wear and tear. The dust generation reduces visibility and working conditions for the blasting operators considerably (*Figure 1*).
These factors can lead to safety risks in the workplace and increase the need for additional protective equipment, which further increases operating costs. Although the initial costs for disposable blasting media appear lower, on closer inspection, the cost-effectiveness is often inadequate.
High refill quantities increase material consumption and unstable operating mixtures make the blasting process longer and therefore more expensive. The frequent replacement of pressure hoses and blasting nozzles further increases operating costs, so that disposable blasting media do not always offer the hoped-for cost savings.

Advantages of using reusable blasting media

Amagrit is a high-quality angular stainless steel blasting media that offers high durability promises. With a service life of several hundred to over a thousand cycles, Amagrit is a cost-effective option. The use of Amagrit results in low dust generation, which significantly improves working conditions (*Figure 2*). Blasting operators benefit from improved visibility, which increases the quality of their work, minimises the risk of errors and significantly reduces blasting times.
In addition, disposal costs are reduced because Amagrit is durable and less material needs to be refilled. Another advantage of the stainless steel grit is that the surfaces treated with it remain rust-free, even carbon steel substrates, for up to 72 h.
This temporary rust resistance ensures that companies gain a time buffer between pre-treatment and final coating.

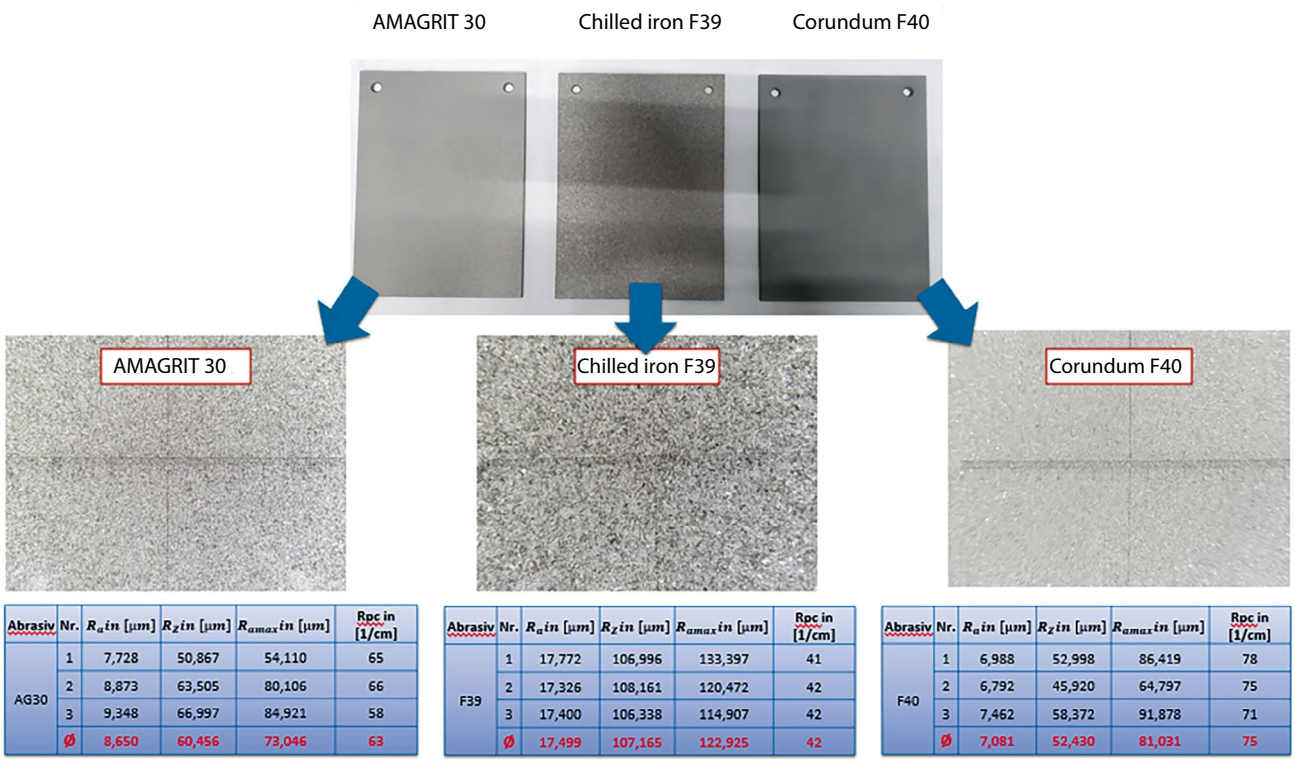
Corrosion protection put to the test

The temporary rust resistance when processing steel sheets with Amagrit was proven in a test. In this qualitative test setup, steel sheets were treated with three different blasting media (*Figure 3*):

1. Ervin Amagrit AG 30 => Hardness: approx. 58-61 HRc; bulk density: ap-

Figure 1 > Blasting with corundum generates a lot of dust, which leads to poor visibility.

Figure 2 > When using stainless steel blasting media, dust formation is significantly reduced. This gives the blaster a clear view.



Abrasiv	Nr.	R_a in [µm]	R_z in [µm]	R_{amax} in [µm]	Rpc in [1/cm]
AG30	1	7,728	50,867	54,110	65
	2	8,873	63,505	80,106	66
	3	9,348	66,997	84,921	58
	Ø	8,650	60,456	73,046	63

Abrasiv	Nr.	R_a in [µm]	R_z in [µm]	R_{amax} in [µm]	Rpc in [1/cm]
F39	1	17,772	106,996	133,397	41
	2	17,326	108,161	120,472	42
	3	17,400	106,338	114,907	42
	Ø	17,499	107,165	122,925	42

Abrasiv	Nr.	R_a in [µm]	R_z in [µm]	R_{amax} in [µm]	Rpc in [1/cm]
F40	1	6,988	52,998	86,419	78
	2	6,792	45,920	64,797	75
	3	7,462	58,372	91,878	71
	Ø	7,081	52,430	81,031	75

Figure 3 > Three different blasting media tested: a comparison of the surfaces and roughness depths on the blasted steel sheets.

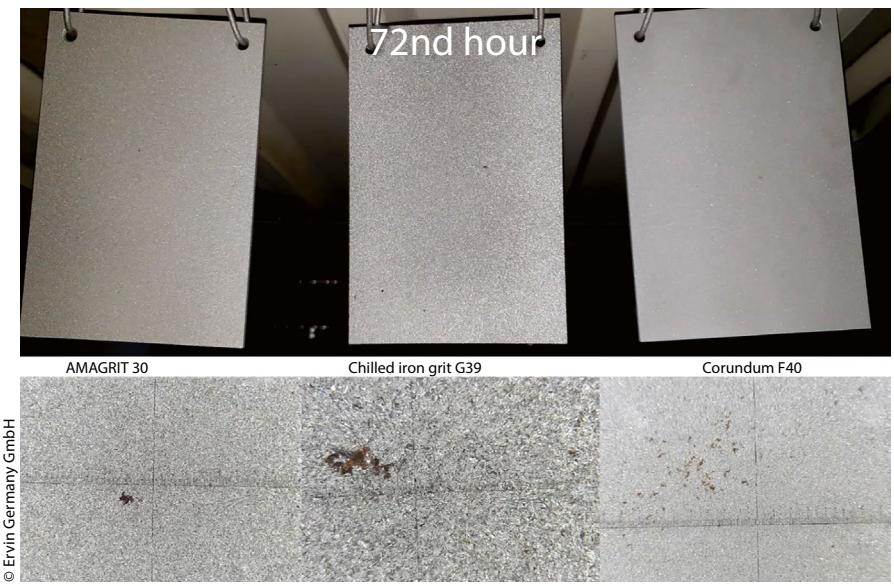


Figure 4 > In contrast to corundum and chilled iron grit, Amagrit only showed the first signs of rust after 72 h in a dry outdoor environment.

prox. 4.1 kg/L; service life: several hundred to over a thousand cycles; properties: very low dust generation, rust-free surfaces

2. Chilled iron grit G39 => Hardness: approx. 56-67 HRc; bulk density: approx. 3.2 – 4.7 kg/L; service life: lower durability compared to Amagrit; properties: moderate dust generation
3. Corundum F40 => Hardness: approx. 9 Mohs; Bulk density: approx. 1.5 – 2.1 kg/L; Service life: short-lived (2-8 cycles); Properties: high dust generation, poor visibility

The rust resistance of the blasted steel sheets was then tested in different climatic conditions.

The steel sheet treated with Amagrit only showed the first signs of rust after 72 h in a dry outdoor environment (*Figure 4*). In contrast, the other blasting media showed signs of rust much earlier.

Conclusion

In summary, it can be said that Amagrit, as a reusable blasting agent, is not only an economically sensible choice, but also contributes significantly to improving working conditions.

With its durability, low dust generation and ability to temporarily produce rust-free surfaces, Amagrit clearly stands out from conventional disposable blasting media. When selecting the right blasting media, the focus should not only be on purchasing costs but also on the long-term benefits in terms of efficiency, safety and environmental protection. Amagrit offers significant advantages in this regard and is therefore the blasting media of choice in many cases. //

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