

# ERASTEEL

## ASP<sup>®</sup> 2078

*A new powder metallurgy grade for gear cutting applications*



[www.erasteel.com](http://www.erasteel.com)

## A NEW GRADE FOR GEAR CUTTING APPLICATIONS

More and more, Powder Metallurgy High Speed Steels grades bring a solution to customers willing to upgrade their products. Our R&D department works daily to improve the performance of hobs and shaper cutters to increase cutting parameters.

An appropriate addition of sulfur makes tool machining easier while higher alloy content enables longer tool life and/or higher cutting speed.

ASP® 2078 enlarges Erasteel's portfolio in conventional grades as: E M2, E M35, E M42 as well as ASP® grades like ASP® 2004, ASP® 2030, ASP® 2048, ASP® 2052 to meet your market needs.



## CHEMICAL COMPOSITION

Grade	C	Cr	Mo	W	Co	V	S
ASP® 2078	2.3	4.2	7.0	6.5	10.5	6.5	0.23

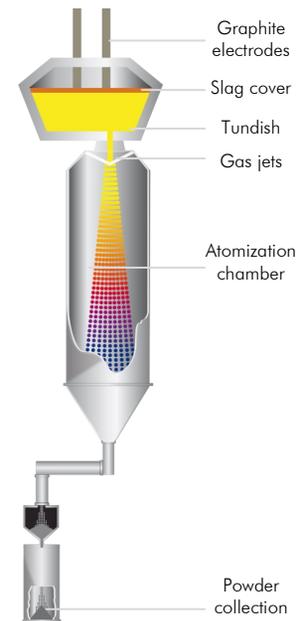
ASP® 2078 is our highest alloyed PM-HSS.

## MAIN FEATURES

- High performance
- Improved machinability
- Excellent surface roughness
- Standard heat treatment

ASP® 2078 is produced using the ASP® process, which ensures a clean and uniform material with small evenly dispersed carbides and no segregation or carbide streaks. The combination of this refined structure with a high alloy content allows better cutting performances when using ASP® 2078 compared to ASP® 2052.

Furthermore, the controlled addition of sulfur improves machinability and surface roughness, greatly reducing the risk of unexpected failures.



## IMPROVED MACHINABILITY

Sulfur facilitates soft machining, hob and shaper cutter manufacturing. Machining tests have shown that soft machinability of ASP<sup>®</sup> 2078 can even be better than regular ASP<sup>®</sup> 2052.

Thanks to the very good cleanliness of the ASP<sup>®</sup> process, sulfur addition doesn't affect performance of the ASP<sup>®</sup> 2078 matrix.



ASP<sup>®</sup> 2078

$V_b = 0,41$  mm after 29 minutes

Wear of the end mill (same condition): -40% vs ASP<sup>®</sup> 2052

## EXCELLENT SURFACE ROUGHNESS

Sulfur helps to get a better surface. A smoother surface can reduce the required grinding operations during hob manufacturing and consequently reduce production costs.

## MACHINING TESTS

ASP<sup>®</sup>2078:  $R_a = 3,25 \mu\text{m}$  ;  $R_z = 15,8 \mu\text{m}$



The surface is smooth with ASP<sup>®</sup>2078

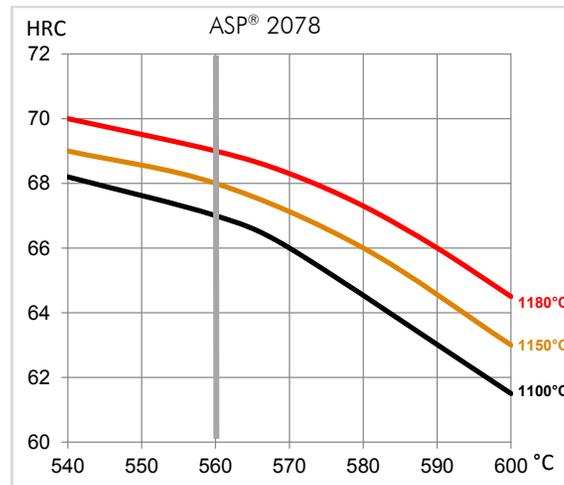
## ASP<sup>®</sup> 2078 PRODUCT RANGE

- Peeled bars from 35 mm to 400 mm diameter

## HEAT TREATMENT

ASP® 2078 can be heat treated using different hardening temperatures between 1100 °C to 1180 °C and tempering temperatures to allow different resulting hardness from 66 to 69 HRC. For the optimal performance the tempering temperature should be kept at 560 °C and performed three times with cooling to below 25 °C between the temperings.

1240°C is required in ASP® 2052 to get similar hardness. In many cases, hardening at 1240°C is an issue. Hardening ASP® 2078 at 1180°C makes life easier for heat treatment shops, also by enabling combination of several grades in the same batch with ASP® 2078.



## SERVICE & TECHNICAL SUPPORT

Erasteel has always given priority to service and technical support through a long-term partnership approach with its customers. Finding the most efficient solutions to meet customers' need is a permanent concern of the company in the fields of sales, logistics and technical service.

Technical Support is essential in Erasteel's philosophy. Through a highly experienced team and high technology equipment, Erasteel offers different services to cutting tool makers:

- On-site visits to provide support on manufacturing issues, such as heat treatment and processing of HSS
- Material examination
- To co-develop new products, work on new ideas and projects and find together the best solutions for the future
- Technical support visits can be organized at one of your locations or one of our plants