

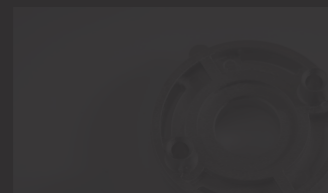
# CARBONYL IRON POWDER

for Microwave Absorption in EMI  
Shielding and Radar Applications

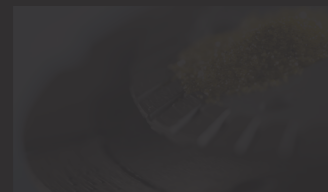
**BASF**  
We create chemistry



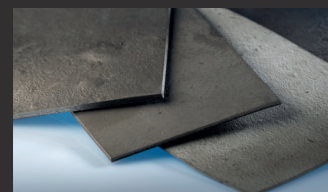
Inductive  
Electronic  
Components



Metal Injection  
Molding and  
Powder Metallurgy



Diamond  
Tools



Microwave  
and Radar  
Absorption

## ADVANTAGES OF CIP BY BASF

- Excellent absorption from 1 GHz and higher
- Broadband absorption characteristics
- Easily compoundable
- Compatible with most polymer matrices

## BASF'S CIP GRADES

BASF produces carbonyl iron powders (CIP) since almost one century. The unique microstructure and chemical design give our powders its outstanding magnetization behavior. The onion-skin structure of mechanically hard CIP grades suppresses eddy currents and keeps the magnetic behavior stable in the GHz range. This leads to a strong interaction of our powders with the magnetic field vector of microwaves. It makes CIP an excellent absorber of microwave frequencies enabling technologies – from civil to military shielding applications. Our powders are easily incorporated in plastic or elastomeric materials or in varnish systems.

## Our CIP grades - overview of selected chemical and physical parameters

Thanks to their outstanding particle design our CIP grades show superior absorption characteristics. The desired maximum reflection damping frequency can easily be adjusted by filling degrees and its sheet thickness. Both of which are enabled by BASF's excellent batch to batch consistency and narrow particle size distribution, finally, helping our customers to efficiently run their production processes.

## TYPICAL PROPERTIES

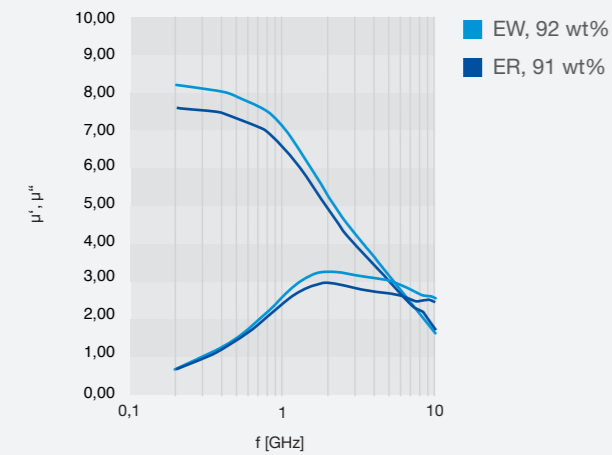
Grade	Fe (%)	C (%)	D50 (mic.)
CIP ER	min. 97.0	max. 1.0	max. 4.5
CIP EW	min. 97.0	max. 0.9	3.0 – 4.0
CIP EW-I	min. 97.0	max. 0.9	3.0 – 4.0
ET*	min. 97.0	max. 1.0	max. 5.5
ET-I*	min. 97.0	max. 1.0	max. 6

\* New product from mass production (Sample B to Sample C)



BASF's CIP and its composites also show excellent transmission damping properties in various frequency regimes.

For example, noise suppression could be achieved within a regime of 1-10 GHz and far field damping within a regime of 10-20 GHz. The peak of its shielding power is located at a frequency of around 2 GHz. The narrow particle size distribution and high sphericity of BASF's CIP enable an optimized fabrication of thin but also flexible films, if desired, in combination with high filling degrees.



At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. More than 110,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world.

Please contact us to discuss the requirements of your CIP application.

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## EUROPE

BASF SE  
Metal Systems, Carbonyl Iron Powder  
G-EDM/MM  
67056 Ludwigshafen am Rhein  
Germany  
Phone: +49 621 600

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## CHINA

BASF (China) Company Ltd.  
Pudong, Shanghai  
China  
Phone: +86 21 2039 1328

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## TAIWAN

BASF Taiwan Ltd.  
Taoyuan 32853  
Taiwan  
Phone: +886 3483 7701

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## KOREA

BASF(Korea) Company Ltd.  
Ansan 15423  
Korea  
Phone: +82 31 599 7513

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## NORTH AMERICA

BASF Corporation  
Florham Park, NJ,  
USA  
Phone: +1 973 245 6000

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## JAPAN

BASF Japan Ltd.  
Nihonbashi, Tokyo 103-0022  
Japan  
Phone: +81 03 5290 3000

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## INDIA

BASF India Ltd.  
400 705, Navi Mumbai  
India  
Phone: +91 8291281183



Visit our website at:  
[www.carbonylironpowder.com](http://www.carbonylironpowder.com)

## NOTE

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