

BASF's soft grades

BASF's soft grades can be pressed to high densities using low amounts of binder. Thus, high permeability levels are reached at considerable Q-factors for frequency ranges up to 5 MHz. CIP SQ offers an excellent combination of high and stable permeability over a broad range of frequencies and currents combined with low core losses. CIP SQ is also offered as insulated grade SQ-I.

CIP SW-S is the latest development in our soft grade range. Using our deep understanding of coating chemistry we have developed a grade with extremely high resistance values. The insulated CIP SP-I grade reaches the best permeability due to the shift of its particle size distribution to higher values.

BASF's hard grades

Hard grades reach lower density levels. Their onion-shell structure strongly increases the resistance against eddy current losses. Thus, the combination of low permeability and the extremely low core loss make hard grades suitable for high frequency applications well above 10 MHz.

CIP EW is the standard grade with resistance values above 10^{10} Ohm. CIP HQ grade is the material with the smallest particle size distribution in the market. They show lowest core losses at very high frequencies.



CIP IEC: G-CAM_CIP_0312_IEC_e_03

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

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Note

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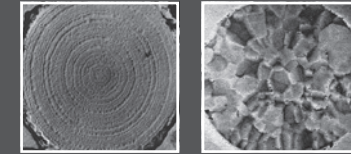
 **BASF**
The Chemical Company

Carbonyl Iron Powder for Inductive Electronic Components



 **BASF**
The Chemical Company

Inductive Electronic Components



CARBONYL IRON POWDER FOR INDUCTIVE ELECTRONIC COMPONENTS

BASF produces carbonyl iron powders (CIP) since more than 80 years. The unique micro structures and unparalleled purity give our powders its outstanding magnetization behaviour for electronic applications. BASF's CIP grades are frequently used as inductor core material in DC/DC converters for power supply and in filter chokes for noise suppression. We continuously work on for innovative solutions in order to give the best possible support to our customers.

ADVANTAGES OF CIP BY BASF

- suited for high current operations due to high saturation magnetization well above 1 Tesla
- soft saturation allows excellent performance control at high currents
- applicable at high frequency operations due to stable permeability and low core losses
- good processability during SMD core production due to spherical shape



Our CIP grades for high-quality Inductive Electronic Components

Thanks to their outstanding fineness and homogeneity, our well-known high-quality CIP grades contribute to superior tool performance.

Our soft CIP grades

Typical Properties*			
Grade	Min. Iron content [g/100 g]	Coating	Mean particle size d 50 [μ]
SQ	99.5	–	4.5
SQ-I	98.5	insulated	5
SP-I	99.5	insulated	8
SW-S	98	insulated	4

Our hard CIP grades

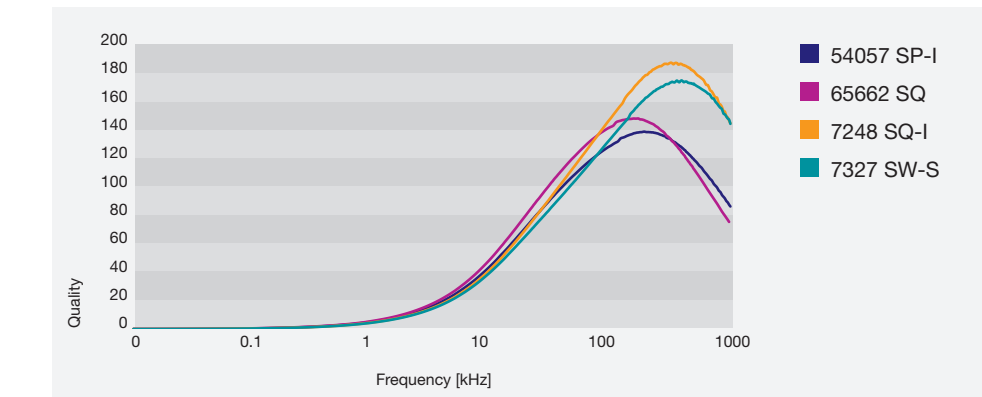
Typical Properties*			
Grade	Min. Iron content [g/100 g]	Coating	Mean particle size d 50 [μ]
EW	min. 97	–	3.5
HQ	min. 97	–	2.0

*magnetic properties depend on type of core, values not subject to specification

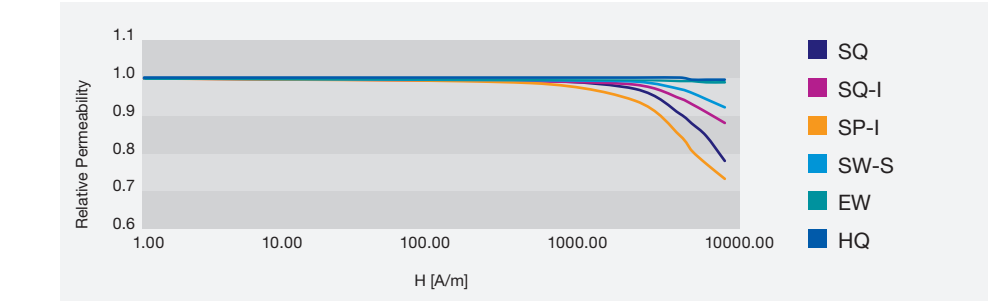
Hard grades were prepared with 4.5% Epikote and pressed with 0.345 Gpa. Soft grades were prepared with 1.25% Epikote and pressed with 0.54 Gpa. For all measurements, pressed Rings with 20 Cu wire windings (d = 0.85 mm) were used.

Hard grades were not measured since they show their maximum quality factor at 10 MHz (EW with Q = 189) and 30 MHz (HQ with Q = 233) respectively.

Quality vs. Frequency (soft grades)



Permeability vs. DCbias (soft and hard grades)



Permeability vs. Frequency CIP (soft and hard grades)

