

## Elgraph® Recarburiser Premium “G” for Grey Cast Iron, and where low nitrogen is required.

### 1. Product description:

The Elgraph® family of recarburisers has been created to meet the highest quality requirements in the manufacture of grey and ductile irons.

Elgraph® Premium “G” Recarburiser is especially formulated as a carbon raiser for grey iron, with high purity and particular emphasis on low content of nitrogen and hydrogen.

Its high dissolution rate makes it very suitable in the carbon adjustment phase of metal preparation.

### 2. Chemical analysis:

Element:	Specification (%)	Typical Analysis (%)
Fixed C	98,5 (min.)	99,1
Sulphur	0,7 (max.)	0,4
Nitrogen	0,3 (max.)	0,15
Hydrogen	0,02 (max.)	0,005
Volatiles	0,6 (max.)	0,4
Ash	0,6 (max.)	0,5

### 3. The production of Elgraph® Recarburisers.

Elgraph® recarburisers are carbon additives formulated and manufactured at high temperatures from selected raw materials specifically for use as recarburisers during cast iron and steel manufacture.

The Elgraph® recarburisers are manufactured by Elkem's Carbon Division, the inventor and world's leading manufacturer of the Søderberg electrode paste since 1919.

Extensive research has resulted in the development of a new generation continuous electric calciner, operating at very high temperatures (up to 3000°C) to manufacture the Elgraph® recarburisers.

### 4. Sizes:

Size grading: < 0,5 mm  
0,5 - 5 mm

### 5. Packaging:

Multi-walled 25 Kgs. paper bags, shrinkwrapped on pallets.

1000 Kgs. Big Bags.

### 6. Physical data:

Colour:	Black
Appearance:	Particles
Electrical conductivity	100 - 300 $\mu\Omega\text{m}$
Odour:	None
Melting point:	Non-melting
Solubility(water)	Insoluble
Solubility(org.solv.)	Insoluble
Specific gravity (kg/m <sup>3</sup> )	1900-2200
Bulk density(kg/m <sup>3</sup> )	750 - 900

### 7. Foundry practice:

Most foundries have developed their own practice of how to add the different charge materials to the induction furnaces. In order to achieve maximum efficiency the recarburiser should be added together with the steel scrap. When added this way, the recarburiser will be well distributed in the furnace and give consistent and high yields. For carbon adjustments in liquid iron, furnaces or ladles, the iron should be clean and the slag removed before the recarburiser is added. Stirring under and after the carbon addition will help improve the yield.

### 8. The importance of recarburiser quality and consistency.

Grey and ductile irons often have different requirements regarding the physical and chemical make-up of the recarburisers. This is process and practise related. General requirements for recarburisers are to give best possible value for money, i.e. rapid solubility and good carbon recovery, avoidance of reject castings and consistent quality from shipment to shipment.

**\* The role of Sulphur in grey iron:**

Sulphur is a key trace element and has a beneficial effect in the manufacture of grey iron. To optimise the performance of inoculants and ensure good graphite structures, it is recommended to use final sulphur levels between 0,05 to 0,12% for all grey irons. When sulphur becomes lower than this, there may be a tendency for chill and undercooled graphite. In induction melting of grey iron it is recommended to use a recarburiser containing small amounts of sulphur, thus giving the inoculant the chance to work to its full capability.

When grey and ductile iron is produced from the same furnace, and taps of ductile iron is following grey iron out of the same heat, it is recommended to use the lowest possible sulphur in the base metal by using low sulphur containing raw materials and recarburisers (in such case Elgraph® Superior Grade recarburiser is recommended). The use of specialist inoculants may then be used under the lower sulphur conditions and advice from your local Elkem representative should be sought.

**\* Nitrogen in grey iron:**

It is important to maintain a low nitrogen content in grey iron. Levels between 0,004wt% and 0,009wt% nitrogen are quite common in commercially produced grey iron. At these levels, nitrogen can have beneficial effects, pro-

moting fully pearlitic structures and improving tensile strength. At nitrogen levels above 0,009wt% the iron is less able to retain the gas during solidification and nitrogen is liberated to form pinholes or fissure defects, sometimes in combination with hydrogen.

It is therefore important to use recarburisers with low nitrogen content, preferably below 0,3wt%.

**9. Health and safety:**

---

Refer to Elkem "Material Safety Data Sheet" No.420.

**10. The Elgraph® family of recarburisers.**

---

**Elgraph® Superior Grade** - synthetic graphite, especially formulated as a low sulphur, high purity carbon raiser for the most demanding ductile iron and steel making processes. May also be used for final trimming of grey iron.

**Elgraph® Premium Grade** - especially formulated as a carbon raiser for grey iron and steel production, with high purity and particular emphasis on low content of nitrogen and hydrogen.



**Elkem ASA**

**Carbon**

P.O. Box 8040 Vaagsbygd

N-4675 Kristiansand S.- Norway

Telephone: +47 38 01 70 00

Telefax: +47 38 01 76 41

Изключителен представител и  
вносител за България и Македония:

**"РЕМЕКО" ООД**

1407 София, бул. "Дж. Баучър", 99-101

тел.: +359 2 962 20 78, 962 47 36

факс: +359 2 962 21 02

e-mail: remeko@remeko.com