

## **EUROFER Position paper on Carbon in Steel and Cast Iron**

### **Background**

The REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) is a regulation on substances. This Regulation requires substances to be registered unless they are exempted from registration according to annex IV or V or unless they are waste.

### **Carbon in Steel and Cast Iron**

In today's iron and steel industry, the function and the quality of its product is determined by the exact amount of carbon content in the steel and cast iron.

In the following steps of steel making, the carbon content of "pig iron" (Iron, furnace; EINECS number 265-998-4) is first reduced to a minimum and, secondly, depending on the required steel and cast iron quality, it may be necessary to increase the carbon content again by adding carburising agents to the steel. In this case, carbon will be extracted from the carburising agent and dissolved in the steel in order to function as an alloying element<sup>1</sup>.

Consequently, in terms of REACH, carbon is a substance in the special preparation "liquid steel" or cast iron and it is no longer exempted from registration, unless the exemption of Annex V 4 (b) of the REACH Regulation is applicable.

In Annex V 4(b) of the REACH Regulation the terms and conditions for exemption are described as followed:

*„EXEMPTIONS FROM THE OBLIGATION TO REGISTER IN ACCORDANCE WITH ARTICLE 2(7)(b):*

*4. Substances which are not themselves manufactured, imported or placed on the market and which result from a chemical reaction that occurs when:*

*(a) ... (..)*

*(b) a substance solely intended to provide a specific physicochemical characteristic functions as intended."*

*This exemption applies to carbon in steel and cast iron, because the carbon is not manufactured or placed on the market as pure carbon itself. Carbon in steel and cast iron originates from the carburising agents (natural products) and is a result of a chemical reaction in the converter. The purpose of carbon in steel and cast iron is to provide an intended specific physicochemical characteristic function as an alloying element. Consequently, carbon in steel and cast iron arising from the production process in the manner described above should be exempted from registration according to the provisions of Annex V 4(b).*

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<sup>1</sup> Since the carbon originates from coal and coke which are in Annex V, so exempted from (pre)registration. This marks its contrast to other alloying elements

In the following steps of steel making in an Electric Arc Furnace (EAF), the carbon content of the recovered steel is directed from steel scrap, erosion of the EAF graphite electrodes or from ferro-alloy additions high in carbon. Once again, depending on the required steel quality, it may be necessary to increase the carbon content again by adding carburising agents to the steel. In this case, carbon will be extracted from the carburising agent and dissolved in the steel in order to function as an alloying element<sup>2</sup>.

### **Conclusion**

**Carbon in steel and cast iron arising both from the integrated and EAF steel production processes should be exempted from (pre)registration.**

*Besides carbon in steel and pig iron, steel companies will have to make a decision how to define carbon imported with ferro-alloys. Eurofer advises importers of ferro-alloys to consult with the appropriate substance consortia to determine the most appropriate actions in respect to carbon in ferro-alloys.*

*"Important Notice: This position paper is intended as a supplement to the REACH Regulation and the official REACH Technical Guidance Documents published by the European Chemicals Agency (ECHA). It is provided as an advisory document and, as such, has no legal standing. Therefore, in conjunction with this position paper, users are advised to consult Regulation EC 1907/2006 (for the legally binding requirements of REACH) and the official REACH Technical Guidance Documents (for detailed information on REACH implementation). It may also be appropriate to seek independent legal advice on matters related to pre-registration and registration. While every effort has been made to ensure the accuracy of this document, neither Eurofer nor the authors of this document accept liability for its content or for the use which might be made of the information herein."*

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<sup>2</sup> Since the carbon originates from coal and coke which are in Annex V, so exempted from (pre)registration. This marks its contrast to other alloying elements