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EUROFER Position paper on substances in a steel bath

Substances in a steel bath

In the steel making process, a lot of substances are added to produce the right steel grade. Three groups of alloying additions can be distinguished:

1. Substances that don't chemically modify in the process. Registration under REACH is not necessary.
2. Substances formed unintentionally in very small quantities, like some aluminium compounds. These substances are not measured, not deliberately produced and not wanted. These substances are defined as impurities and registration under REACH is not necessary.
3. Substances that are deliberately created. E.g. metal oxides like Molybdenum Oxides, Nickel-oxides, Aluminium oxides and others or other substances like e.g. CaSi are added to be transformed into the metallic state during the melting process. For the metal, specifications are available.

This third group of substances is discussed in more detail below:

ad 3.) Deliberately created substances in a steel bath

In today's iron and steel industry, the function and the quality of its products is determined by the exact amount of certain metals obtained by adding specific alloying elements. The additions are sometimes in another chemical structure than those occurring in the final steel. The metal is dissolved in the liquid metallic bath in order to function as an alloying element. This liquid steel is cast directly into e.g. slabs, blooms which are defined as articles¹.

In this case, exemption Annex V.3 of REACH regulation from the obligation to register in accordance with Article 2(7)(b) applies: "*Substances which result from a chemical reaction occurring upon end use of other substances, preparations or articles and which are not themselves manufactured, imported or placed on the market."*

Taking the example of molybdenum oxide: this substance is being used in the production of an article, e.g. the steel slab/blooms, and in this process it is converted chemically into molybdenum metal. However, as this reaction is taking place in the production of an article, it constitutes an end use of the molybdenum oxide. Thus molybdenum is not itself manufactured as a substance as such to be placed on the market but is an integrative component of the steel product. Furthermore, there is no intentional release of any substance (meaning no registration following Article 7.1 of REACH regulation) out of the article.

The use of the created substances in steel will be assessed in the respective registration dossier of the individual substances added in the steel bath.

Besides the above mentioned legal reason to exempt deliberately created substances in a steel bath from registration, it is patently clear that neither the environment nor human health would benefit from any additional registration.

¹ See „EUROFER position paper determining the borderline between preparations/articles for steel and steel products“ when steel and steel products become an article.

Conclusion

Deliberately created substances in a steel bath result from a chemical reaction occurring upon end use of another substance and are not themselves manufactured, imported or placed on the market. This means the criteria of Annex V.3 of REACH regulation are fulfilled. Furthermore, there is no intentional release of any substance out of the steel article. As such, these substances are exempted from registration.

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