

EUROFER REACH position on Iron Ore Pellets and Sinter

REACH Exemptions

Article 2(7)(b) of REACH states that “*substances covered by Annex V, as registration is deemed inappropriate or unnecessary for these substances and their exemption from these Titles does not prejudice the objectives of this Regulations*”. The exemption under Annex V allows the substances listed to be removed from the duties of Registration, Downstream Users and Evaluation requirements.

A substance which occurs in nature is defined in Article 3(39) of REACH as; “*Substances which occur in nature means a naturally occurring substance as such, unprocessed or processed only by manual, mechanical or gravitational means, by dissolution in water, by flotation, by extraction with water, by steam distillation or by heating solely to remove water, or which is extracted from air by any means*”.

Ores are listed under the exemptions of Annex V. Ores such as iron ore can be classed as substances, which occur in nature. Within the draft guidance document to Annex V¹ it does state however that, “*when ores are processed or treated with methods not mentioned in the definition of ‘substances which occur in nature’ the final ‘product’ of the treatment can normally not be regarded as a substance which occurs in nature and hence will need to be registered*”.

Substances, which are naturally occurring and are not chemically modified, are exempt as is written above. A definition of a ‘Not chemically modified substance’ is as follows; “*a substance whose chemical structure remains unchanged, even if it has undergone a chemical process or treatment, or physical mineralogical transformation, for instance to remove impurities*”.

Production of Iron Ore Pellets

Depending on where the iron ore is located and mined, it's mineralogical make-up will differ. Some ores are predominantly Magnetite (Fe_3O_4) and some are Haematite (Fe_2O_3). Pellets would ideally be in the form of Fe_2O_3 ; generally pellets will contain >80% Fe_2O_3 and some small amounts of Fe_3O_4 .

If the iron ore fines are Fe_2O_3 and processed into pellets, then theoretically, no chemical change will occur as Fe_2O_3 is still there at the end point of the pellet production. However, the temperature in the pelletisation process is very high, so chemical modification can't be excluded.

¹ European Commission, Brussels, 19th May 2008, Draft Guidance for Annex V

If the iron ore fines are Fe_3O_4 and processed into pellets (at temperature), then oxidation would almost certainly take place causing a chemical modification to take place, forming Fe_2O_3 at the end point. This, according to the definitions as listed above, is a chemical modification and therefore causes that particular Fe_2O_3 registration under REACH is required.

The additions within the pellets (e.g. olivine and bentonite) will not be chemically modified.

Production of Sinter

Independent from the iron ore (magnetite or haematite), sinter typically contains about 5-15% FeO in the end (besides e.g. Fe, Fe_2O_3 and CaO), so reduction will always take place. This is defined as a chemical modification and therefore requires registration under REACH.

Conclusions

- Iron ore pellets: (pre-)registration is recommended, even if the source is haematite.
- Sinter: chemical modification to form e.g. FeO has taken place, so (pre-)registration is recommended.

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