Document supporting the non-classification of
Iron Sinter

Summary:
Iron Sinter[1] is not classified according to physiochemical properties, environmental and health regulations under the UN GHS Guidelines[2] which are the basis of the classification requirements for various regulatory purposes[3]. This statement is based on the current understanding of the available data and registered information[4], in accordance with the ICMM guidance for hazard classification of ores and concentrates.[5]

Definition[1]
Iron Sinter is defined as a thermally agglomerated substance formed by heating a variable mixture of finely divided coke, iron ore, blast furnace dust, steelmaking dust, mill scale, other miscellaneous iron-bearing materials, limestone and dolomite at 1,315°C to 1,482°C, with EC number 265-997-9 and CAS number 65996-66-9. The Iron Platform sameness description defines iron sinter as containing more than 55% Iron (III) oxide (Fe_2O_3), less than 23% iron (II) oxide (FeO) and less than 11% silicon dioxide, as well as oxides of calcium, aluminium and magnesium, and can be expressed by the mineralogical constituents:

- major phase hematite (Fe_2O_3), magnetite (Fe_3O_4), wüstite (FeO) and Ca-magnetite
- minor phase: crystalline silica (quartz, calcium silicate, lamite (Ca_2SiO_4), forsterite (Mg_2SiO_4)).[1]

Environment:

Iron, Sinter is highly insoluble (0.05µg/L at 25°C)[4] and hence non-hazardous. It consists largely of insoluble iron oxides. In 2004, the EU Classification and Labelling Committee concluded that there was no need for classification of iron salts and that iron massive and sparingly soluble forms of iron are non-hazardous. Literature studies have used test solutions with iron concentrations above the solubility limit leading to physical effects of precipitated material which are not relevant for assessing the intrinsic toxicity. However the Iron Platform is working with EU regulatory authorities to develop an Environmental Quality Standard (EQS) and Ecotoxicity Reference Value (ERV) for iron.

Physiochemical properties:
Iron Sinter is not classified.

Health:
Iron Sinter is not classified. Extensive investigations were performed for REACH[4] which resulted in no classification of iron or iron oxides[6]. The presence of Respirable Crystalline Silica (RCS) in Iron Sinter has been shown to be below 0.1%[7]. In addition, note that IARC[8] evaluated related substances hematite and ferric oxide as Group 3 Classification, i.e. not classifiable as to its carcinogenicity to humans (IARC Monographs, 1987*)*. Note also that iron is not included in the State of California's Proposition 65 List of Chemicals known to the State to cause cancer or reproductive toxicity.[9] However, it is recommended

---

[1] As specified by the sameness description of the REACH Iron Platform (see Iron Sinter SIEF page)
[2] See http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html
[3] Including EU CLP and REACH, International Maritime Organisation (IMSBC Code, MARPOL Convention)
[4] Iron/ Iron Furnace were registered for REACH in 2010 - for all the information please refer to ECHA website, registered substances
[5] ICMM Ores and Concentrates Guidance - an Industry approach to EU hazard classification (approach can be used for international GHS); see http://www.icmm.com/library/oresandconcentrates
[6] Iron Platform position papers by Dr. R. Gaunt & Dr. T.Birk, January 2010, included in the REACH dossier
[7] Iron Platform, position paper on respirable crystalline silica in iron sinter
[8] World Health Organisation, International Agency for Research on Cancer
[9] State of California, Environmental Protection Agency, Office of Environmental Health Hazard, Safe Drinking Water and Toxic Enforcement Act of 1986: chemicals known to the State to cause cancer or reproductive Toxicity, June 6th 2014.

that all producers should have information regarding their specific level of RCS and, if above 1%, they should classify (as STOT RE 2 if RCS is between 1 and 10 %, as STOT RE 1 if >10%).[7]

The Iron Platform has produced a SDS template for Iron Sinter which can be downloaded from our website.

Disclaimer: The Iron Platform and Iron Platform Services Ltd. do not make any representations or warranties in relation to the content of this guidance document. In particular, the Iron Platform and Iron Platform Services Ltd. do not make any representations or warranties regarding the accuracy, timeliness or completeness of its content. The Iron Platform and Iron Platform Services Ltd. will not be responsible for any loss or damage caused by relying on the content contained in this document.