



IRON and STEEL SLAGS - - NON-HAZARDS

A Special Report from the National Slag Association

Allegations of iron and steel making slags being "hazardous" are the subject of numerous files in the National Slag Association office dating back to the 1920's.

Federal Register Explanation

The Federal Register, Vol. 45, No. 98, May 19, 1980, lists the substances ruled hazardous by EPA. On page 33124, four steel-industry substances were listed. These were identified to EPA by a consulting firm requested to examine all steel-industry products, including slag, to determine which were hazardous under EPA criteria. Slag was tested by EPA standards and found to be non-hazardous.

Don Lewis, Chief Engineer of NSA, described this in a December 14, 1980 letter:

"The original EPA proposed regulation for hazardous wastes contained three items that could have resulted in slags being covered by that regulation, despite statements by EPA personnel that they did not intend for steel-industry slags to be so classified. These were: (1) retained heat that could ignite fires, (2) a limit of 12 pH on leachates that would be classified as "corrosive" and (3) classification as "reactive" of cyanide or sulfide-bearing materials that could generate toxic gases when exposed to either acid or alkaline conditions. There was also a possibility that some slags would be borderline on toxicity when acid leaching was used with limits of 10 times drinking water standards.

"Both the American Iron and Steel Institute and the National Slag Association submitted formal comments to EPA, objecting to these provisions on the basis that slags are not hazardous but could be placed in that category by improper definitions or requirements. All of these objections were considered by EPA, and suitable changes were made in the final regulation published in Part III of the Federal Register for Monday, May 19, 1980.

"EPA's own contact research studies listed slags as non-hazardous under the existing test methods and standards; a fact that undoubtedly helped in the consideration of our comments.

"The criteria for hazardous waste classification in the Federal Register of May 19, 1980 cover four major characteristics: Ignitability, Corrosivity, Reactivity, and Toxicity. As explained on pages 33108 and 33109, retained heat from manufacturing or processing was dropped from the standard to avoid inclusion of slags in the Ignitability hazard class.

"Corrosivity requirements were changed to only include liquid wastes and the upper pH value raised to 12.5 or more, effectively excluding high pH steel slag from the hazardous classification. The reactivity standards, as noted on pages 22110, were revised to require that any toxic gases generated must be in 'a quantity sufficient to present a danger to human health or the environment'; slag generating only minute quantities are, therefore, exempted. The Toxicity requirements set maximum leachate values at 100 times the drinking water standard, far higher than any slag could ever be expected to test.

"Known or suspected toxic wastes were listed in sections 261.31 and 261.32 of the standard (pages 33123 and 33124). 'Dewatered air pollution control scrubber sludges from coke oven and blast furnaces' were listed in 261.31 as hazardous waste number F016. In 261.32, four steel-industry wastes were listed under number K060 to K063, inclusive. Only one of these, K061 - Emission control dust/sludge from the electric furnace production of steel, is the only one related to furnace operation.

"In the final listing of Hazardous Wastes, Part VII, Federal Register for Wednesday, November 12, 1980, Waste No. F016 was deleted for 261.31, since EPA is now convinced that the blast furnace and coke oven scrubber sludges pose no significant hazards (page 74888). K063 (sludge from lime treatment of pickle liquor) was also removed from the hazardous list, but is still covered by another section until proved safe.

"The only furnace-related by-product of the steel industry listed as hazardous is the electric-furnace emission control dust or sludge, based on possible high concentrations of hexavalent chromium, lead and cadmium. Individual sources can be tested for toxicity from these materials and cleared from the hazardous classification on an individual plant basis. No steelmaking slags are current classification criteria, or are intended to be included in such classification. All types of slags from the steel industry are being used and have been used for many years."

EPA's own contract research studies performed nearly a decade ago listed slag as non-hazardous under the existing test methods and standards. NSA has not been notified of any change in this posture. If anyone has any information or documentation to the contrary, please forward it, forthwith, to the NSA office.

Refer to: Federal Register, Vol. 45, No. 98, May 19, 1980, pages 33108-10 and 33123-4. For further information, contact:

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