COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals

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COORDINATION AND WORK PROGRAMME

Comments on ST/SG/AC.10/C.4/2004/20 on terrestrial enviroment hazards (Letter to the Chairperson)

Transmitted by the International Mining and Metals Industry (ICMM)

Dear Ms. Headrick

RE – Terrestrial Classification

ICMM on behalf of the international mining and metals industry would like to comment on the issue of whether or not a terrestrial classification system should be developed to enhance the existing GHS Classification and Labelling System. The metals industry has considered this subject at some length and has been involved in evaluating terrestrial approaches for classification and test methods both internally and with international scientific organizations such as the Society of Environmental Toxicology and Chemistry (SETAC) since 1996. These efforts have resulted in peer reviewed manuscripts such as the SETAC Workshop on Test Methods for Hazard Determination of Metals and Sparingly Soluble Metal Compounds in Soils (Fairbrother et al. 1999).

It is our belief that the addition of a terrestrial classification system is premature and will not add value relative to metals and minerals for the following reasons:

(1) The terrestrial testing methodologies used to evaluate hazard are not well developed for metals and minerals and in particular for sparingly soluble metal compounds, massive metals and alloys.
(2) The effort that will be required to develop reliable OECD test methods for metals compounds and metal massives will be large and will require several years. This effort is underway as mentioned below.
(3) To date, terrestrial toxicity test methods have utilized soluble metal salts to assess the hazard of the metal substances. This approach has significant limitations for assessing the toxicity of sparingly soluble metal compounds and even greater limitations for assessing the toxicity of massive metals and alloys due to lack of standard approaches for incorporating metals into soils and limitations in accurate assessment of bioavailability. Further, the issue of how to interpret background concentrations of metals in soils is one that has not been satisfactorily resolved as of yet due to lack of underpinning science. The issue of testing “difficult substances” is one that goes well beyond metal substances and also includes many organic based chemicals.
(4) While significant advancement on test methods for metals has occurred as a part of the research efforts that have been undertaken over the past 4 years for EU risk assessments of cadmium, copper, nickel and zinc, unifying theory (terrestrial biotic ligand models) and agreement on test methods (including soil spiking approaches, soil aging, interpretation of microbial function tests) are just emerging for a limited number of metals. There is much work left to be done that will likely continue in response to the EU REACH proposed Directive.

(5) Most of the metal substances that are likely to classify (soluble metal salts and some sparingly soluble metal compounds, i.e., oxides and sulfides) have already been classified according to aquatic testing procedures. It is very unlikely that additional metal substances will be identified for classification that have not already been classified.

We conclude that it is premature at this time to go forward with a terrestrial classification system for metals. Significant effort over 8 years was required to develop test methods that allowed for aquatic classification. An even greater effort and expenditure of funds will be required to develop reliable test methods for terrestrial systems. While we support the development of terrestrial toxicity test methods and are actively engaged with Universities in North America, Australia and Europe to improve the methodologies, the state of the science is not sufficiently developed for the broad array of metals, metal compounds and alloys that will require testing. Further, we conclude that there will be little benefit in undertaking such a large exercise of classifying metals and metal substances over what is already known through the aquatic classification efforts. Before extending the classification system to include terrestrial ecosystems, we recommend that the cost and benefits of developing this system be carefully examined.

Yours sincerely

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References

Fairbrother A, Glazebrook PW, Van Straalen,N, Tarazona J. 1999. Summary of the SETAC Workshop on Test Methods for Hazard Determination of Metals and Sparingly Soluble Metal Compounds in Soils, 19-23 June 1999, San Lorenzo de El Escorial, Spain, SETAC Press, Pensacola, FL.

Table 1: Classification of metal and metal compounds in the EU

Chemical name	EU Classification
trisodium hexafluoroaluminate; cryolite	N; R51-53
beryllium compounds with the exception of aluminium beryllium silicates, and with those specified elsewhere in this Annex	N; R51-53
aluminium phosphide	N; R50
antimony compounds, with the exception of the tetroxide (Sb2O4), pentoxide (Sb2O5), trisulphide (Sb2S3), pentasulphide (Sb2S5) and those specified elsewhere in this Annex	N; R51-53
antimony pentachloride	N; R51-53
antimony trichloride	N; R51-53
antimony trifluoride	N; R51-53
arsenic	N; R50-53
arsenic compounds, with the exception of those specified elsewhere in this Annex	N; R50-53
cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), mixture of cadmium sulphide with zinc sulphide (xCdS.yZnS), mixture of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex	N; R50-53
cadmium (pyrophoric)	N; R50-53
cadmium (non-pyrophoric) [1] cadmium oxide (non-pyrophoric) [2]	N; R50-53
cadmium cyanide	N; R50-53
cadmiumhexafluorosilicate(2-) cadmium fluorosilica	N; R50-53
cadmium chloride	N; R50-53
cadmium fluoride	N; R50-53
cadmium iodide	N; R50-53
cadmium sulphate	N; R50-53
cadmium sulphide	R53
calcium phosphide tricalcium diphosphide	N; R50
chromium (VI) compounds with the exception of barium chromate and of compounds specified elsewhere in this Annex.	N; R50-53
ammonium dichromate	N; R50-53
calcium chromate	N; R50-53
chromium (VI) trioxide	N; R50-53
chromyl chloride	N; R50-53
potassium chromate	N; R50-53
potassium dichromate	N; R50-53
sodium dichromate anhydrate	N; R50-53
sodium dichromate, dihydrate	N; R50-53
sodium chromate	N; R50-53
strontium chromate	N; R50-53
zinc chromates including zinc potassium chromate	N; R50-53
dichromium tris(chromate)	N; R50-53
cobalt	R53
cobalt dichloride	N; R50-53
cobalt oxide	N; R50-53
cobalt sulphate	N; R50-53
cobalt sulphide	N; R50-53
dicopper oxide	N; R50-53

Chemical name	EU Classification
copper chloride	N; R50-53
copper sulphate	N; R50-53
lead compounds with the exception of those specified elsewhere in this Annex	N; R50-53
lead chromate	N; R50-53
lead chromate molybdate sulfate red; C.I. Pigment Red 104 [This substance is identified in the Colour Index by Colour Index Constitution Number, C.I. 77605.]	N; R50-53
lead hexafluorosilicate	N; R51-53
lead sulfochromate yellow; C.I. Pigment Yellow 34 [This substance is identified in the Colour Index by Colour Index Constitution Number, C.I. 77603.]	N; R50-53
lead diazide; lead azide	N; R50-53
lead hydrogen arsenate	N; R50-53
trilead bis(orthophosphate)	N; R50-53
inorganic compounds of mercury with the exception of mercuric sulphide and those specified elsewhere in this Annex	N; R50-53
mercury	N; R50-53
magnesium phosphide	N; R50
nickel monoxide	R53
nickel dioxide	R53
dinickel trioxide	R53
nickel carbonate	N; R50-53
nickel sulphate	N; R50-53
nickel sulphide	N; R50-53
nickel subsulphide	N; R51-53
nickel dihydroxide	N; R50-53
tetracarbonylnickel; nickel tetracarbonyl	N; R50-53
Selenium	R53
sodium selenite	N; R51-53
silver nitrate	N; R50-53
Thallium	R53
tin tetrachloride	R52-53
Uranium	R53
divanadium pentaoxide; vanadium pentoxide	N; R51-53
divanadyl pyrophosphate	N; R51-53
vanadyl pyrophosphate	N; R52-53
vanadium(IV) oxide hydrogen phosphate hemihydrate, lithium, zinc, molybdenum, iron and chlorine-doped	N; R51-53
zinc powder - zinc dust (pyrophoric)	N; R50-53
zinc powder - zinc dust (stabilized)	N; R50-53
trizinc bis(orthophosphate)	N; R50-53
zinc oxide	N; R50-53
trizinc diphosphide zinc phosphide	N; R51-53
zinc chloride	N; R50-53
zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate) [1] zinc sulphate (anhydrous) [2]	N; R50-53
