

CLASSIFICATION AND LABELLING

Classification and labelling according to CLP / GHS

Name: Pyrochlore, antimony lead yellow

Implementation: EU

State/form of the substance: solid

Remarks: Pyrochlore:

The overall chemical and physiological properties of pyrochlore are principally characterised by a degree of inertness because of the specific synthetic process (calcination at high temperatures, approximately 1000°C), rendering the substance to be of a unique, stable crystalline structure in which the majority of atoms are tightly bound and not prone to dissolution in environmental and physiological media. This has been shown in in-vitro bioaccessibility testing for antimony, in which dissolved Sb concentrations were below 105 µg/L even at the highest loading of 0.1g/L, thus implying a solubility of < 0.12% of antimony. Hence, Sb can be considered as not bioavailable and is not regarded concerning toxicological and environmental effects.

On the other hand, lead dissolution levels were much higher (up to 6.2 mg/L at pH 1.7) and therefore have to be regarded concerning toxicological and environmental aspects. Substance-specific data on the toxicity of pyrochlore is only partly available, so that read-across to lead oxide and sparingly soluble lead compounds was conducted in order to complete the data set.

It is explicitly noted here that due to the outcome of an acute toxicity study according to OECD 401, classification as Acute Tox. 4; H302 for the pigment pyrochlore is not recommended.

Lead:

Existing classification in accordance with Commission Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures. Index No. 082-001-00-6 "lead compounds with the exception of those specified elsewhere in this Annex". The basis of the original environmental classifications is unknown. However current industry data supports the EU environmental classifications. The basis of the original human health classifications is unknown. However the lead oxide CSR includes a self classification section that, based on industry's analysis of current data, proposes CHANGES TO THE EU CLASSIFICATION. Industry proposes changes to the existing harmonised classification with the addition of Carc. 2 and the change of STOT RE2 to STOT RE1 that are not covered in Annex VI.

As a result, the classification for acute toxicity via the oral route and by inhalation is not supported for the pigment pyrochlore.

Classification

The substance is classified as follows:

Classification and labelling according to CLP / GHS for physicochemical properties

Endpoint	Hazard category	Hazard statement	Reason for no classification
Explosives:			conclusive but not sufficient for classification
Flammable gases:			conclusive but not sufficient for classification
Flammable aerosols:			conclusive but not sufficient for classification
Oxidising gases:			conclusive but

			not sufficient for classification
Gases under pressure:			conclusive but not sufficient for classification
Flammable liquids:			conclusive but not sufficient for classification
Flammable solids:			conclusive but not sufficient for classification
Self-reactive substances and mixtures:			conclusive but not sufficient for classification
Pyrophoric liquids:			conclusive but not sufficient for classification
Pyrophoric solids:			conclusive but not sufficient for classification
Self-heating substances and mixtures:			conclusive but not sufficient for classification
Substances and mixtures which in contact with water emit flammable gases:			conclusive but not sufficient for classification
Oxidising liquids:			conclusive but not sufficient for classification
Oxidising solids:			conclusive but not sufficient for classification
Organic peroxides:			conclusive but not sufficient for classification
Corrosive to metals:			conclusive but not sufficient for classification

*) Justification for (non) classification can be found in the CSR section indicated

Classification and labelling according to CLP / GHS for health hazards

Endpoint	Hazard category	Hazard statement	Reason for no classification
Acute toxicity - oral:			conclusive but not sufficient for classification
Acute toxicity - dermal:			conclusive but not sufficient for classification
Acute toxicity -			conclusive but

inhalation:			not sufficient for classification
Skin corrosion / irritation:			conclusive but not sufficient for classification
Serious damage / eye irritation:			conclusive but not sufficient for classification
Respiration sensitization:			conclusive but not sufficient for classification
Skin sensitization:			conclusive but not sufficient for classification
Aspiration hazard:			conclusive but not sufficient for classification
Reproductive Toxicity:	Repr. 1A Specific effect: H360Df- May damage the unborn child. Suspected of damaging fertility.	H360: May damage fertility or the unborn child <state specific effect if known > <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.	
Reproductive Toxicity: Effects on or via lactation:			conclusive but not sufficient for classification
Germ cell mutagenicity:			conclusive but not sufficient for classification
Carcinogenicity:	Carc. 2	H351: Suspected of causing cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.	
Specific target organ toxicity - single:			conclusive but not sufficient for classification
Specific target organ toxicity - repeated:	STOT Rep. Exp. 1 Affected organs: The central nervous system, kidneys and haematological (blood) systems	H372: Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.	

*) Justification for (non) classification can be found in the CSR section indicated

Specific concentration limits:

Concentration (%)	Classification
>= 0.05	STOT Rep. Exp. 2
>= 2.5	Repr. 2
>= 0.5	STOT Rep. Exp. 1

Classification and labelling according to CLP / GHS for environmental hazards

Endpoint	Hazard category	Hazard statement	Reason for no classification
Hazards to the aquatic environment (acute/short-term):			data lacking
Hazards to the aquatic environment (long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects.	
M-Factor acute: 10			
M-Factor chronic: 1			
Hazardous to the ozone layer:			conclusive but not sufficient for classification

*) Justification for (non) classification can be found in the CSR section indicated

Classification and labelling according to CLP / GHS for additional hazard classes

Additional hazard classes:	Aquatic Acute Category 1
Additional hazard statements:	H400

Labelling

Signal word: Danger

Hazard pictogram:

GHS08: health hazard



GHS07: exclamation mark



GHS09: environment



Hazard statements:

H351: Suspected of causing cancer <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.

H410: Very toxic to aquatic life with long lasting effects.

H360: May damage fertility or the unborn child <state specific effect if known > <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. (H360Df- May damage the

unborn child. Suspected of damaging fertility.)

H372: Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. (H372: Causes damage to organs through prolonged or repeated exposure.)

Classification and labelling according to DSD / DPD

Classification and labelling in Annex I of Directive 67/548/EEC

Name: Pyrochlore, antimony lead yellow

Remarks: Pyrochlore: The overall chemical and physiological properties of pyrochlore are principally characterised by a degree of inertness because of the specific synthetic process (calcination at high temperatures, approximately 1000°C), rendering the substance to be of a unique, stable crystalline structure in which the majority of atoms are tightly bound and not prone to dissolution in environmental and physiological media. This has been shown in in-vitro bioaccessibility testing for antimony, in which dissolved Sb concentrations were below 105 ug/L even at the highest loading of 0.1g/L, thus implying a solubility of < 0.12% of antimony. Hence, Sb can be considered as not bioavailable and is not regarded concerning toxicological and environmental effects. On the other hand, lead dissolution levels were much higher (up to 6.2 mg/L at pH 1.7) and therefore have to be regarded concerning toxicological and environmental aspects. No substance-specific data on the toxicity of pyrochlore are available, so that instead read-across to lead oxide and sparingly soluble lead compounds was conducted. Lead: Existing classification in accordance with Annex 1 of Directive 67/548/EEC entry "lead compounds with the exception of those specified elsewhere in this Annex". The basis of the original environmental classifications is unknown. However current industry data supports the EU environmental classifications. The basis of the original human health classifications is unknown. However the lead oxide CSR includes a self-classification section that, based on industry's analysis of current data, WOULD NOT FULLY SUPPORT THE EU CLASSIFICATION. There is limited evidence that this substance has carcinogenic effects and therefore this should be included. There is limited evidence of carcinogenic effect and it is proposed that the R33 is changed to R48/23/25 which was not is not mentioned in the harmonised classification which should be applied. The classification for acute toxicity via oral route and by inhalation could not be approved for the pigment pyrochlore.

Classification

The substance is classified as follows:

Classification and labelling in Annex I of Directive 67/548/EEC for physicochemical properties

Endpoint	Classification	Reason for no classification
Explosiveness:		conclusive but not sufficient for classification
Oxidising properties:		conclusive but not sufficient for classification
Flammability:		conclusive but not sufficient for classification
Thermal stability:		conclusive but not sufficient for classification

*) Justification for (non) classification can be found in the CSR section indicated

Classification and labelling in Annex I of Directive 67/548/EEC for health hazards

Endpoint	Classification	Reason for no classification
Acute toxicity:		conclusive but not sufficient for classification
Acute toxicity - irreversible damage after single exposure:		conclusive but not sufficient for classification
Repeated dose toxicity:	R33 Danger of cumulative effects.	
Irritation / Corrosion:		conclusive but not sufficient for classification
Sensitisation:		conclusive but not sufficient for classification
Carcinogenicity:	Carc. Cat. 3; R40 Limited evidence of a carcinogenic effect.	
Mutagenicity - Genetic Toxicity:		conclusive but not sufficient for classification
Toxicity to reproduction - fertility:	Repr. Cat. 3; R62 Possible risk of impaired fertility	
Toxicity to reproduction - development:	Repr. Cat. 1; R61 May cause harm to the unborn child.	
Toxicity to reproduction - breastfed babies:		conclusive but not sufficient for classification

*) Justification for (non) classification can be found in the CSR section indicated

Classification and labelling in Annex I of Directive 67/548/EEC for the environment

Endpoint	Classification	Reason for no classification
Environment:	N; R50/53 Dangerous for the environment; Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.	

*) Justification for (non) classification can be found in the CSR section indicated

Labelling

Indication of danger:

T - toxic
N - dangerous for the environment

R-phrases:

R40 - Limited evidence of a carcinogenic effect
R61 - May cause harm to the unborn child
R33 - Danger of cumulative effects
R62 - Possible risk of impaired fertility

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrases:

S53 - avoid exposure - obtain special instructions before use

S45 - in case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S60 - this material and its container must be disposed of as hazardous waste

S61 - avoid release to the environment. refer to special instructions/safety data sheets

Specific concentration limits:

Concentration (%)	Classification
≥ 2.5	Repr. Cat. 3; R62 Possible risk of impaired fertility
≥ 0.5	R33 Danger of cumulative effects.
≥ 1.0	Xn; R20/22 Harmful by inhalation and if swallowed.

Transport Information

Land transport (ADR/RID)

UN number: UN 2291
Class: 6.1
Classification code: T5
Packaging group: III
Labels: 6.1, dead fish/dead tree.
Special provisions: 199, 274, 535

Inland waterway transport (AND(R))

UN number: UN 2291
Class: 6.1
Classification code: T5
Packaging group: III
Labels: 6.1, dead fish/dead tree.

Marine transport (IMDG)

UN number: UN 2291
Proper shipping name and description: LEAD COMPOUNDS, SOLUBLE, N.O.S. (contains lead calcinated).
Chemical name: pyrochlore, antimony lead yellow.
Class: 6.1
Packaging group: III
EmS number: F-A, S-A
Labels: 6.1, dead fish/dead tree.
Marine pollutant: yes (p)

Air transport (ICAO/IATA)

UN number: UN 2291
Proper shipping name and description: LEAD COMPOUNDS, SOLUBLE, N.O.S. (contains lead calcinated).
Chemical name: pyrochlore, antimony lead yellow.
Class: 6.1
Packaging group: III
Labels: 6.1, dead fish/dead tree.