



Classification matrices

Date: 8 December 2010

This document presents those classifications that were discussed and agreed by the Members of the Precious Metals and Rhenium Consortium (PMC) during the 1 (Au, PM CN-), 2 (PGM) and 3 (Re) December 2010 CLP meetings.

Classifications are derived on the basis of:

- Existing proprietary data provided by PMC Members (Klimisch rank 1 or 2)
- Existing available data published in a series of known databases (Klimisch rank 1 or 2)
- Existing harmonised classifications listed in Annex VI of the CLP regulation¹
- Robust read-across where applicable
- Experience and expertise of PMC Members

Substances and intermediates that are not classified for any CLP/GHS or DSD endpoint are not listed in this document. This applies for instance, to gold metal, rhenium metal and all platinum group metals (platinum, palladium, rhodium, ruthenium and iridium) which are not classified for any endpoint. The full list of substances and intermediates addressed by the PMC can be downloaded from www.epmf.be (cf. "REACH Committee" tab).

As a duty of care, all classifications will be reviewed as part of the REACH project they are in scope with, in order to submit validated or updated classifications in each REACH Registration Dossier.

A CLP report providing further background information on the derivation of each classification is available upon request from the PMC.

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¹ Where available data (whether proprietary or published) provides evidence for a classification different than the classification that exists in Annex VI of the CLP regulation (whether better or worse), PMC Members must implement the worst classification in their SDS, labels, etc. until the classification derived by PMC is considered, discussed and approved by authorities, where applicable.



Silver

Silver (powder)****	Silver nitrate (solid < 250 µm)****	Silver nitrate (solid > 250 µm)****	Silver nitrate (>= 5% AgNO ₃ solution)****	Silver nitrate (3-5% AgNO ₃ solution)****	Silver nitrate (< 3% AgNO ₃ solution)****	Disilver oxide****
7440-22-4	7761-88-8	7761-88-8	7761-88-8	7761-88-8	7761-88-8	20667-12-3
Aquatic Acute 1 (H400)	Ox. Sol. 1 (H271)	Ox. Sol. 2 (H272)	Skin corr. 1B (H314)	Skin irr. 2 (H315)	Skin irr. 2 (H315)	Ox. Sol. 1 (H271)
Aquatic Chronic 1 (H410)	Skin corr. 1B (H314)	Skin corr. 1B (H314)	Eye dam. 1 (H318)	Eye dam. 1 (H318)	Eye irr. 2 (H319)	Eye dam. 1 (H318)
M factor: 1000	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)
	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)
	Met. Corr. 1 (H290)	Met. Corr. 1 (H290)	Met. Corr. 1 (H290)	Met. Corr. 1 (H290)	Met. Corr. 1 (H290)	M factor: 1000
	M factor: 1000	M factor: 1000	M factor: 1000	M factor: 1000	M factor: 1000	

**** CLP notification has been submitted as part of a REACH Registration before 1 December 2010



Silver (cont.)

Silver carbonate	Disilver (1+) sulphate	Silver chloride	Silver bromide	Disilver sulphide
534-16-7	10294-26-5	7783-90-6	7785-23-1	21548-73-2
Eye dam. 1 (H318)	Eye dam. 1 (H318)	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)
Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)
Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	M factor: 1000	M factor: 1000	M factor: 1000
M factor: 1000	M factor: 1000	Met. Corr. 1 (H290)		

**Gold**

Tetrachloroauric acid	Aurio (1+) 2,6,6-trimethylbicyclo[3.1.1]heptanethiolate
16903-35-8	68365-87-7
Acute tox. 4 (H302)	Flam. Solid Cat 1(H228)
Skin corr. 1a (H314)	
Eye dam. 1 (H318)	
Aquatic Chronic 3 (H412)	
Met. Corr. 1 (H290)	



Precious Metal Cyanides

Silver cyanide (CAS 506-64-9) Potassium dicyanoargentate (CAS 506-61-6) Potassium dicyanoaurate (CAS 13967-50-5)	Potassium tetrakis (cyano-C) aurate (CAS 14263-59-3)
Acute tox. 2 (H330, fatal if inhaled)	Acute tox. 2 (H330, fatal if inhaled)
Acute tox. 1 (H310, fatal in contact with skin)	Acute tox. 1 (H310, fatal in contact with skin)
Acute tox. 2 (H300, fatal if swallowed)	Acute tox. 2 (H300, fatal if swallowed)
EUH032: contact with acids liberates very toxic gas*	Skin Irrit. 2 (H315)
Skin Irrit. 2 (H315)	Eye dam. 1 (H318)
Eye dam. 1 (H318)	Aquatic acute 1 (H400)
Aquatic acute 1 (H400)	Aquatic chronic 1 (H410)
Aquatic chronic 1 (H410)	Met. Corr. 1 (H290)
Met. Corr. 1 (H290)	



Platinum

Platinum (black)	Dihydrogen hexahydroxyplatinate*	Platinum dinitrate*	Dihydrogen hexahydroxy platinate, with 2-aminoethanol*	Platinum, 1,3-diethenyl-1,1,3,3-tetramethyldisiloxane complexes*	Dipotassium tetrachloroplatinate	Tetraammine-platinum dichloride
7440-06-4	51850-20-5	18496-40-7	68133-90-4	68478-92-2	10025-99-7	13933-32-9
Self-heat. Cat 1 (H251)	Acute tox. 4 (H332) (inhalation)	Oxid. Solid 2 (H271)	Acute tox. 4 (H332) (inhalation)	Flam. Liquid 2 (H225)	Acute tox. 3 (H301) (oral)	Skin Irrit. 2 (H315)
	Eye Irrit. 2 (H319)	Skin Corr. 1A (H314)	Eye Irrit. 2 (H319)	Aquatic Chronic 4 (H413)	Skin Irrit. 2 (H315)	Eye Dam. 2 (H319)
		Eye dam. 1 (H318)			Skin sens. 1 (H317)	Met. Corr. 1 (H290)
		Met. Corr. 1 (H290)			Eye dam. 1 (H318)	
					Resp. Sens. 1 (H334)	
					Met. Corr. 1 (H290)	

* a different classification containing additional precautionary endpoints will be submitted by some PMC members

** for labelling purposes only



Platinum (cont.)

Hexachloroplatinic acid	Dipotassium hexachloroplatinate	Diammonium hexachloroplatinate	Platinum dioxide (anhydrous)	Platinum dioxide (hydrate)	Diammineplatinum (II) nitrite	Tetraammineplatinum dinitrate
16941-12-1	16921-30-5	16919-58-7	1314-15-4	1314-15-4	14286-02-3	20634-12-2
Acute tox. 2 (H301) (oral)***	Acute tox. 3 (H301) (oral)	Acute tox. 3 (H301) (oral)	Oxid. Solid 2 (H272)	Oxid. Solid 2 (H272)	Eye Dam. 1 (H318)	Self-reactive Type A (H240)
Skin corr. 1B (H314)	Skin sens. 1 (H317)	Skin sens. 1 (H317)			EUH001: Explosive when dry**	Skin Irrit. 2 (H315)
Skin sens. 1 (H317)	Eye dam. 1 (H318)	Eye dam. 1 (H318)				Eye Dam. 2 (H319)
Eye dam. 1 (H318)	Resp. Sens. 1 (H334)	Resp. Sens. 1 (H334)				EUH001: Explosive when dry**
Resp. Sens. 1 (H334)	Met. Corr. 1 (H290)	Met. Corr. 1 (H290)				EUH044: Risk of explosion if heated under confinement**
Aquatic acute 1 (H400)						
Aquatic chronic 1 (H410)						
Met. Corr. 1 (H290)						

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*** although Annex VI of the CLP regulation indicates a classification for Acute tox. 3, proprietary data indicates that category 2 applies here



Palladium

Palladium (black)	Palladium dichloride	Dihydrogen tetrachloropalladate (2-) (in solution)	Palladium sulphate	Disodium tetrachloropalladate	Palladium dinitrate (in solution)*	Diamminedichloropalladium*	tetrakis(triphenyl phosphine) palladium*	Palladium dihydroxide
7440-05-3	7647-10-1	16970-55-1	13566-03-5	13820-53-6	10102-05-3	14323-43-4	14221-01-3	12135-22-7
Self-heat. Cat 1 (H251)	Skin Sens 1 (H317)	Acute Tox. 4 (H302) (oral)	Acute Tox. 4 (H302) (oral)	Acute Tox. 4 (H302) (oral)	Oxid. Solid 2 (H272)	Acute Tox. 4 (H302) (oral)	Aquatic Chronic 4 (H413)	Aquatic Chronic 4 (H413)
	Eye Dam 1 (H318)	Skin Corr. 1A (H314)	Skin Corr. 1A (H314)	Eye Dam. 2 (H319)	Acute Tox. 4 (H302) (oral)	Aquatic Chronic 4 (H413)		
	Met. Corr. 1 (H290)	Skin Sens 1 (H317)	Eye Dam. 1 (H318)	Met. Corr. 1 (H290)	Skin Corr. 1A (H314)			
		Eye Dam. 1 (H318)	Met. Corr. 1 (H290)		Eye Dam. 1 (H318)			
		Aquatic Acute 1 (H400)			Aquatic Acute 1 (H400)			
		Aquatic Chronic 1 (H410)			Aquatic Chronic 1 (H410)			
		Met. Corr. 1 (H290)			Met. Corr. 1 (H290)			

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Palladium (cont.)

Dichlorobis(triphenyl phosphine) palladium*	Palladium (II) di(4-oxopent-2-en-2-oate)*	Tetraammine palladium (2+) dichloride (in aq. solution)	Tetraammine palladium (2+) diacetate	Tetraammine palladium (II) dihydroxide	Tetraammine palladium dinitrate	Palladium(II) acetate	Dipotassium hexachloro-palladate	Diammonium hexachloro-palladate
13965-03-2	14024-61-4	13815-17-3	61495-96-3	68413-68-3	13601-08-6	3375-31-3	16919-73-6	19168-23-1
Aquatic Chronic 4 (H413)	Flam. Solid 1 (H228)	Acute Tox. 4 (oral) (H302)	Acute Tox. 4 (H302) (oral)	Acute Tox. 4 (H302) (oral)	Self-reactive Type A (H240)	Eye Dam. 1 (H318)	Acute Tox. 4 (H302)	Acute Tox. 4 (H302) (oral)
	Self heat. 1 (H251)	Skin Sens 1 (H317)	Skin Sens 1 (H317)	Skin Sens 1 (H317)	Acute Tox. 4 (H302) (oral)	Aquatic Chronic 4 (H413)	Skin Irrit. 2 (H315)	Skin Irrit. 2 (H315)
	Aquatic Chronic 4 (H413)	Eye Dam. 2 (H319)	Eye Dam. 2 (H319)	Eye Dam. 2 (H319)	Skin Sens 1 (H317)		Eye Dam. 1 (H318)	Eye Dam. 1 (H318)
		Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Aquatic Acute 1 (H400)	Eye Dam. 2 (H319)			
		Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	Aquatic Chronic 1 (H410)	Aquatic Acute 1 (H400)			
		Met. Corr. 1 (H290)			Aquatic Chronic 1 (H410)			
					EUH044: Risk of explosion if heated under confinement**			

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Rhodium

Rhodium (black)	Carbonyl(pentane-2,4-dionato-O,O')(triphenylphosphine)rhodium *	Carbonylhydrotris(triphenyl phosphine)rhodium	Dicarbonyl(pentane-2,4-dionato-O,O')rhodium	Rhodium trichloride (anhydrous)	Rhodium trichloride (hydrate)*	Rhodium trinitrate (in solution)*
7440-16-6	25470-96-6	17185-29-4	14874-82-9	10049-07-7	10049-07-7	10139-58-9
Self-heat. Cat 1 (H251)	Aquatic Chronic 4 (H413)	Aquatic Chronic 4 (H413)	Flam. Solid 1 (H228)	Aquatic Chronic 4 (H413)	Acute tox. 4 (H302) (oral)	Oxid. Solid 2 (H272)
			Acute tox. 3 (H301) (oral)		Eye Dam. 1 (H318)	Acute tox. 4 (H302) (oral)
			Eye Irrit. 2 (H319)		Muta. 2 (H341)	Skin Corr. 1A (H314)
			Skin sens. 1 (H317)		Met. Corr. 1 (H290)	Eye Dam. 1 (H318)
			Aquatic Chronic 3 (H412)			Skin sens. 1 (H317)
			EUH044: Risk of explosion if heated under confinement**			Aquatic Acute 1 (H400)
						Aquatic Chronic 1 (H400)
						Met. Corr. 1 (H290)

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Rhodium (cont.)

Rhodium tris(2-ethylhexanoate)*	Tris(triphenylphosphine) rhodium (I) chloride*	Rhodium triiodide	Dirhodium trisulphate*	Rhodium trihydroxide *	Rhodium acetate	Triammonium hexachlororhodate
20845-92-5	14694-95-2	15492-38-3	10489-46-0	21656-02-0	42204-14-8	15336-18-2
Aquatic Chronic 4 (H413)	Aquatic Chronic 4 (H413)	Aquatic Chronic 4 (H413)	Skin Corr. 1A (H314)	Aquatic Chronic 4 (H413)	Eye Dam. 2 (H319)	Eye Dam. 1 (H318)
			Eye Dam. 1 (H318)			
			Met. Corr. 1 (H290)			

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Ruthenium

Ruthenium (black)	Hexakis[μ-(acetato-O:O')]-μ ₃ -oxo-triangulo-triruthenium acetate / Ruthenium acetate (in solution)	Ruthenium trichloride (anhydrous)	Ruthenium trichloride (hydrate)	Tris(nitrato-O)nitrosylruthenium	Ruthenium trihydroxide	Ruthenium (IV) oxide
7440-18-8	55466-76-7	10049-08-8	10049-08-8	34513-98-9	12135-42-1	12036-10-1
Self-heat. Cat 1 (H251)	Eye Dam. 1 (H318)	Aquatic Chronic 4 (H413)	Acute tox. 4 (H302) (oral)	Oxid. Solid 2 (H272)	Aquatic Chronic 4 (H413)	Oxid. Solid 1 (H271)
	Aquatic Acute 1 (H400)		Skin Corr. 1A (H314)	Skin Corr. 1A (H314)		
	Aquatic Chronic 1 (H410)		Eye Dam. 1 (H318)	Eye Dam. 1 (H318)		
			Aquatic Chronic 3 (H412)	Met. Corr. 1 (H290)		
			Met. Corr. 1 (H290)			

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Iridium

Iridium (black)	Iridium trichloride (and hydrate)	Hexachloroiridic acid, Hydrogen hexachloroiridate (IV)	Diammonium hexachloroiridate*	Iridium dioxide*
7439-88-5	10025-83-9	16941-92-7	16940-92-4	12030-49-8
Self-heat. Cat 1 (H251)	Skin Corr. 1A (H314)	Acute tox. 4 (H302) (oral)	Acute tox. 4 (H302) (oral)	Oxid. Solid 2 (H272)
	Eye Dam. 1 (H318)	Skin Corr. 1C (H314)	Met. Corr. 1 (H290)	Aquatic Chronic 4 (H413)
	Met. Corr. 1 (H290)	Eye Dam. 1 (H318)		
		Met. Corr. 1 (H290)		

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Rhenium

Perrhenic acid
13768-11-1
Acute tox. 4 (H302)
Skin corr. 1A (H314)
Eye Dam. 1 (H318)
Met. Corr. 1 (H290)