Date	Version	Initials
2012.05.28	II	BM
2012.05.28	II	BM
2012.05.28	II	BM
2012.05.28	II	BM
2012.05.28	II	BM

Change

506-61-6 Potassium dicyanoargentate New Daphnia and ASRIT test results added
13976-50-5 Potassium dicyanoaurate New Daphnia and ASRIT test results added
506-61-6 Potassium dicyanoargentate Dustiness testing and respiratory tract deposition modelling results added
13976-50-5 Potassium dicyanoaurate Dustiness testing and respiratory tract deposition modelling results added

506-64-9 Silver cyanide Dustiness testing and respiratory tract deposition modelling results added

Annex	Endpoint	I5Z	Information requirement	**506-61-6** Potassium dicyanoargentate	**13976-50-5** Potassium dicyanoaurate	**506-64-9** Silver cyanide
			Tonnage band (tpa)	10-100	10-100	10-100
			Annex III derogations			
VII	7,1	4,1	State of the substance at 20°C and 101.3 kPa	White, crystaline solid (Lide 2008, O'Neil 2006)	White, crystaline solid (Lide 2008, O'Neil 2006)	White-grey crystals (Lide 2008, O'Neil 2006)
VII	7,2	4,2	Melting/freezing point	Decomposes with melting from approximately 368°C (Harlan 2011)	Decomposes from approximately 383°C (Harlan 2011)	Decomposes at 320°C (Lide 2008, O'Neil 2006)
VII	7,3	4,3	Boiling point	Waiver (B)	Waiver (B)	Waiver (B)
VII	7,4	4,4	Relative density	2.43 at 20 ± 0.5°C (Harlan 2012) 2.36 (Lide 1990 cited in US Department of Health and Human Services 2006)	3.60 at 20 ± 0.5°C (Harlan 2012) 3.45 (Lide 2008)	3.95 (Lide 2008, O'Neil 2006)
VII	7,5	4,6	Vapour pressure	Waiver (D)	Waiver (D)	Waiver (D)
VII	7,6	4.10	Surface tension	Waiver (E)	Waiver (E)	Waiver (E)
VII	7,7	4,8	Water solubility	20.0 - 21.9% w/w of solution at 20 ± 0.5°C (Harlan 2012) 250 g L-1 at 20°C (EPA 1985 cited in US Department of Health and Human Services 2006)	very soluble (>10,000 mg L-1) (Lide 2008, O'Neil 2006)	<0.1 mg L-1 (insoluble) (Lide 2008, O'Neil 2006)
VII	7,8	4,7	Partition coefficient n-octanol/water	Waiver (F)	Waiver (F)	Waiver (F)
VII	7,9	4,11	Flash-point	Waiver (H)	Waiver (H)	Waiver (H)
VII	7.10	4,13	Flammability	Not classified as a readily combustible solid under Division 4.1 (Harlan 2011)	Not classified as a readily combustible solid under Division 4.1 (Harlan 2011)	Not classified as a readily combustible solid under Division 4.1 (Harlan 2011)
VII	7,11	4,14	Explosive properties	Waiver (N)	Waiver (N)	Waiver (N)
VII	7,12	4,12	Self-ignition temperature	No signs of self-ignition or self-heating at 140°C for 24 hours. When heated from 140 – 400°C the sample temperature exceeded the oven temperature by greater than 60°C at an oven temperature of approximately 400°C (Harlan 2011)	No sign of self-ignition or self-heating at 140°C for 24 hours. When the test item was heated from 140°C to 400°C the temperature did not exceed the oven temperature by greater than 60°C (Harlan 2011)	No sign of self-ignition or self-heating at 140°C for 24 hours. When the test item was heated from 140 to 400°C the sample temperature exceeded the oven temperature by greater than 60°C at an oven temperature of approximately 355°C (Harlan 2011)
VII	7,13	4,15	Oxidising properties	Waiver (W)	Waiver (W)	Waiver (W)
VII	7,14	4,5	Granulometry (particle size distribution)	Proportion <100 µm: 16.8% (Harlan 2011) PSD data will be available from dustiness testing	Proportion <100 µm: 17.6% (Harlan 2011) PSD data will be available from dustiness testing	Proportion <100 µm: 46.4% (Harlan 2011) PSD data will be available from dustiness testing
IX	7,15	4.1.7	Stability in organic solvents and identity of relevant degradation products	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	7,16	4,21	Dissociation constant	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	7,17	4,22	Viscosity	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
			Phys-chem classification	**Metal corrosivity 1 (H290)**	**Metal corrosivity 1 (H290)**	**Metal corrosivity 1 (H290)**
				EUH032: contact with acids liberates very toxic gas (labelling requirement)	**EUH032: contact with acids liberates very toxic gas (labelling requirement)**	**EUH032: contact with acids liberates very toxic gas (labelling requirement)**
VII	9.2.1.1	5.2.1	Biodegradation in water: screening tests	Waiver (1)	Waiver (1)	Waiver (1)
VIII	9.2.2.1	5.1.2	Hydrolysis as a function of pH and identification of degradation products	Waiver (4)	Waiver (4)	Waiver (4)

VIII	9.3.1	5.4.1	Adsorption/desorption screening study	Use available partitioning data on silver and cyanide to fill this endpoint	K_d = 108.17 - 294.47 cm3/g	Use available partitioning data on silver and cyanide to fill this endpoint
IX	9.2.1.2	5.2.2	Simulation testing on ultimate degradation in surface water	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.2.1.3	5.2.3	Soil simulation testing	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.2.1.4	5.2.2	Sediment simulation testing	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.2.3	5,6	Identification of degradation products	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.3.2	5.3.1	Bioconcentration	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX			Further studies on adsorption / desorption	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
Ecotoxicity						
VII	9.1.1	6.1.3	Short-term toxicity testing on aquatic inverts (preferably Daphnia)	EC50: 0.022 mg/L (Brixham Environmental Laboratory 2012) **Aquatic acute 1 (H400)** **Aquatic chronic 1 (H410)**	EC50: 0.2 mg/L (Brixham Environmental Laboratory 2012) **Aquatic acute 1 (H400)** **Aquatic chronic 1 (H410)**	47-h EC50: 0.00056 mg/L (predicted, wca 2012) **Aquatic acute 1 (H400)** **Aquatic chronic 1 (H410)**
VII	9.1.2	6.1.5	Growth inhibition study on aquatic plants (preferably algae)	Model based on toxicity data for silver and cyanide and speciation information. 72-h EC50: >100 mg/L (predicted, wca 2012)	EC50: 30 mg/L (Brixham Environemntal Laboratory 2013)	72-h EC50: 80 mg/L (predicted, wca 2012)
VIII	9.1.4	6.1.7	Activated sludge respiration inhibition testing	EC50: 1.85 mg/L (Brixham Environmental Laboratory 2012)	EC50: 406 mg/L (Brixham Environmental Laboratory 2012)	3-h NOEC: 0.0094 mg/L (predicted, wca 2012)
VIII	9.1.3	6.1.1	Short-term toxicity testing on fish	Model based on toxicity data for silver and cyanide and speciation information. 96-h LC50: 3.3 mg/L (predicted, wca 2012)	EC50: 5.7 mg/L (Brixham Environemntal Laboratory 2013)	96-h LC50: 3 mg/L (predicted, wca 2012)
IX	9.1.5	6.1.4	Long-term toxicity testing invertebrates	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.1.6	6.1.2	Long-term toxicity testing fish	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.4.1	6.3.1 / 6.3.2	Short-term toxicity soil invertebrates	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.4.2	6.3.4	Effects on soil microorganisms	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	9.4.3	6.3.3	Short-term toxicity to plants	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
X	9.4.4	6.3.1 / 6.3.2	Long-term toxicity testing invertebrates	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
X	9.4.6	6.3.3	Long-term toxicity testing higher plants	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
X	9.5.1	6,2	Long-term toxicity sediment organisms	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
X	9.6.1	6.3.5	Long-term or reproductive toxicity to birds	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
			Environmental classification	**Aquatic acute 1 (H400)** **Aquatic chronic 1 (H410)**	**Aquatic acute 1 (H400)** **Aquatic chronic 1 (H410)**	**Aquatic acute 1 (H400)** **Aquatic chronic 1 (H410)**
Mammalian toxicology						
VII	8,1	7.3.1	Skin irritation *in vitro*	Corrosive, classified Cat 1A skin corrosion H314 (EPISKIN, WIL research 2015)	Irritating, classified Cat 2 skin irritation H315 (EPISKIN, Harlan 2014) Non-corrosive, not classified (EPISKIN, Harlan 2014)	Irritant (EPISKIN, Harlan 2014), Non-corrosive (EPISKIN, Harlan 2014)
VII	8,2	7.3.2	Eye irritation *in vitro*	Corrosive, classified Cat 1 severe eye damage H318 (BCOP, WIL research 2015)	Corrosive (Harlan 2014)	Not irritant (BCOP, Harlan 2014)
VII	8,3	7.4.1	Skin sensitisation	Waiver AC	Sensitising (Harlan 2014) **Skin Sens. 1**	Not sensitising (LLNA, Harlan 20114)

VII	8.4.1	7.6.1	*In vitro* gene mutation study in bacteria	Test - 2016	Negative (AMES test, Covance 2013, Covance 2014)	Negative (AMES screening, Covance 2013), main test: Negative (Covance 2013)
VII	8.5.1	7.2.1	Acute toxicity, oral route	Waiver AD	LD50: 29.2 mg/kg (Berthold 1992) **Acute tox 2 (H300)**	key: LD50: 175 mg/kg (LPT 2014) **Acute tox oral 3 (H301)**
VIII	8.1.1	7.3.1	Skin irritation *in vivo*	Waiver AE	Severe irritation (Berthold 1992) **Skin irritant 2 (H315)**	irritant (EPISKIN, Harlan 2014), non-corrosive (EPISKIN, Harlan 2014) **Skin irritation 2 (H315)**
VIII	8.2.1	7.3.2	Eye irritation *in vivo*	Waiver AF	Corrosive (Berthold 1992) **Eye damage 1 (H318)**	Positive (OECD 405, Harlan 2014) **Eye damage 1 (H318)**
VIII	8.4.2	7.6.1	*In vitro* cytogenicity in mammalian cells	Test - 2016	Positive (OECD 487, Harlan 2015)	Negative (OECD 487, Harlan 2015).
VIII	8.4.3	7.6.1	*In vitro* gene mutation study in mammalian cells	Test - depending on previous gene mutation tests	Not required due to positive result in OECD 487	Negative (OECD 476, Covance 2015)
VIII	8.5.2	7.2.2	Acute toxicity, inhalation	Waiver AD	Waiver based on dustiness testing and respiratory tract deposition modelling	Waiver based on dustiness testing and respiratory tract deposition modelling
VIII	8.5.3	7.2.3	Acute toxicity, dermal route	Waiver AD	Not classified, LD50 > 2000 mg/kg bw. (limit test, LPT 2014) **Not classified**	key: LD50 >2000 mg/L, not classified (LPT 2014)
VIII	8.6.1	7,5	Short-term repeated dose toxicity oral/ dermal/ inhalation	Test - 2016	NOAEL 3 mg kg-1 bw day-1 (LPT 2015)	NOAEL 15 mg kg-1 bw day-1 (LPT 2015)
VIII	8.7.1	7.8.1	Reproductive / developmental toxicity toxicity	Test - 2016	NOAEL 3 mg kg-1 bw day-1 (LPT 2015)	NOAEL >50/40* mg kg-1 bw day-1 (LPT 2015)
VIII	8.8.1	7.1.1	Assessment of toxicokinetic behaviour	Conduct based on available data from other tests	Conduct based on available data from other tests	Conduct based on available data from other tests
IX	8.6.2	7,5	Sub-chronic toxicity study (90-day) oral / dermal / inhalation	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	8.7.2	7.8.2	Developmental toxicity study	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
IX	8.7.3	7.8.3	Two generation reproduction toxicity study	Not required at this tonnage	Not required at this tonnage	Not required at this tonnage
X	8,4	7.6.2	In vivo genotoxicity	Not required at this tonnage	Test required based on positive result in OECD 487. Test proposal submitted.	Not required at this tonnage
			Dustiness testing and respiratory tract deposition modelling	Total dustiness: 90.92 mg/g MMAD (µm): 34.9 GSD (µm): 2.1 Regional deposition output values from the MPPD modelling: Head (%): 40.9 TB (%): 0.12 Pulmonary (%): 0.11 Total (%): 41.1 Dustiness: 9.1%	Total dustiness: 358.82 mg/g MMAD (µm): 29.0 GSD (µm): 1.7 Regional deposition output values from the MPPD modelling: Head (%): 47.2 TB (%): 0.09 Pulmonary (%): 0.03 Total (%): 47.3 Dustiness: 35.9%	Total dustiness: 46.67 mg/g MMAD (µm): 31.8 GSD (µm): 1.8 Regional deposition output values from the MPPD modelling: Head (%): 43.1 TB (%): 0.09 Pulmonary (%): 0.04 Total (%): 43.3 Dustiness: 4.7%
			Mammalian toxicology classification	**Acute tox inhal. 2 (H330)** **Acute tox dermal. 1 (H310)** **Acute tox oral. 2 (H300)** **Skin Corr. 1A (314)** ~~**Skin Irrit. 2 (H315)**~~ **Eye dam. 1 (H318)**	**Acute tox inhal. 2 (H330)** ~~Acute tox dermal 1 (H310)~~ Acute tox oral 2 (H300) Skin Irrit. 2 (H315) Eye dam. 1 (H318) Skin Sens. 1	Acute tox inhal. 2 (H330) ~~Acute tox dermal 1 (H310)~~ ~~Acute tox oral 2 (H300)~~ Acute tox oral 3 (301) Skin Irrit. 2 (H315) Eye dam. 1 (H318)

Endpoint	Adaptation	Adaptation wording
Boiling point	A	In accordance with column 2 of REACH Annex VII, the boiling point study does not need to be conducted as this substance is a solid which melts above 300°C. (However, note that in such cases a boiling point under reduced pressure may be estimated or measured).
	B	In accordance with column 2 of REACH Annex VII, the boiling point study does not need to be conducted as this substance decomposes before boiling.
Relative density	C	In accordance with column 2 of REACH Annex VII, the relative density study does not need to be conducted as this substance is only stable in solution in a particular solvent and the solution density is similar to that of the solvent.
Vapour pressure	D	In accordance with column 2 of REACH Annex VII, the vapour pressure study does not need to be conducted as this substance has a melting point above 300°C.
Surface tension	E	In accordance with column 2 of REACH Annex VII, the surface tension study does not need to be conducted as, based on the structure of this substance, surface activity is not expected or predicted and surface tension is not a desired property of the material.
Partition coefficient n-octanol/water, flask shake method	F	In accordance with column 2 of REACH Annex VII, the partition coefficient study does not need to be conducted as this substance is inorganic.
Flash-point	G	In accordance with ECHA (2008) Guidance on information requirements and chemical safety assessment, chapter R7a: endpoint specific guidance, the flash point study does not need to be conducted as this substance is a solid at room temperature.
	H	In accordance with column 2 of REACH Annex VII, the flash point study does not need to be conducted as this substance is inorganic.
	I	In accordance with column 2 of REACH Annex VII, the flash point study does not need to be conducted as this substance only contains volatile organic components with flashpoints above 100°C for aqueous solutions.
	J	In accordance with REACH Annex XI, it is not scientifically justifiable to conduct this study as this substance is in an aqueous solution.
Flammability	K	In accordance with column 2 of REACH Annex VII, the flammability study does not need to be conducted as this substance is a solid which possesses explosive or pyrophoric properties.
	L	In accordance with REACH Annex XI, it is not scientifically justifiable to conduct this study as this substance is in an aqueous solution.
	M	In accordance with REACH Annex XI, it is not scientifically justifiable as this substance is a stable oxide and/or is in its highest oxidation state
Explosive properties	N	In accordance with column 2 of REACH Annex VII, the explosive properties study does not need to be conducted as there are no chemical groups associated with explosive properties present in the molecule.
	O	In accordance with column 2 of REACH Annex VII, the explosive properties study does not need to be conducted as the substance does not contains chemical groups associated with explosive properties which include oxygen and the calculated oxygen balance is less than -200.
	P	Expert statement required - no 'fuel'
Self-ignition temperature	Q	In accordance with column 2 of REACH Annex VII, the self-ignition temperature study does not need to be conducted as the substance is explosive or ignites spontaneously with air at room temperature.
	R	In accordance with column 2 of REACH Annex VII, the self-ignition temperature study does not need to be conducted as the substance is a solid with a melting point less than 160°C.
	S	In accordance with column 2 of REACH Annex VII, the self-ignition temperature study does not need to be conducted as the substance is a solid and preliminary results exclude self heating of the substance up to 400°C.
	T	In accordance with REACH Annex XI, it is not scientifically justifiable to conduct this study as this substance is in an aqueous solution.
Oxidising properties	U	In accordance with column 2 of REACH Annex VII, the oxidising properties study does not need to be conducted as the substance is explosive.
	V	In accordance with column 2 of REACH Annex VII, the oxidising properties study does not need to be conducted as the substance is highly flammable.
	W	In accordance with column 2 of REACH Annex VII, the oxidising properties study does not need to be conducted as the substance is incapable of reacting exothermically with combustible materials on the basis of its chemical structure.
Granulometry (particle size distribution)	X	In accordance with column 2 of REACH Annex VII, the granulometry study does not need to be conducted as the substance is marketed or used in a non solid or granular form.
Other	Other	In accordance with REACH Annex XI, it is not scientifically justifiable....
Solutions waivers	Y	The substance is a solution of an inorganic salt and the freezing point is similar to, but slightly lower than, that of the solvent.
	Z	The substance is a solution of an inorganic salt and the boiling point is similar to, but slightly higher than, that of the solvent.
	AA	The substance is a solution of an inorganic salt and the relative density is similar to, but slightly higher than, that of the solvent.
	AB	Waiver (Other) the substance is a solution of an inorganic salt and the vapour pressure is similar to that of the solvent.
Corrosivity	AC	In accordance with column 2 of REACH Annex VII, the skin sensitisation study does not need to be conducted as the substance is corrosive.
	AD	In accordance with column 2 of REACH Annex VII, the acute toxicity studies don't need to be conducted as the substance is corrosive.
	AE	In accordance with column 2 of REACH Annex VII, the in vivo skin irritation study does not need to be conducted as the substance is corrosive.
	AF	In accordance with column 2 of REACH Annex VII, the in vivo eye irritation study does not need to be conducted as the substance is corrosive.

Endpoint	Adaptation
Biodegradation	1
Hydrolysis	2
	3
	4

Adaptation wording
In accordance with column 2 of REACH Annex VII, the ready biodegradability study does not need to be conducted as the substance is inorganic.
In accordance with column 2 of REACH Annex VIII, the hydrolysis study does not need to be conducted as the substance is highly insoluble in water.
In accordance with section 1 of REACH Annex XI, the hydrolysis study does not need to be conducted as this substance is not expected to undergo hydrolysis in the environment due to a lack of hydrolysable functional groups and therefore testing does not appear scientifically necessary.
In accordance with REACH Annex XI Section 1 testing does not appear to be scientifically necessary because this method is used on organic substances to measure the decomposition or degradation of a chemical reacting with water. For inorganics this type of method is not appropriate.