Precious Metals & Rhenium Consortium
Brussels, 9 October 2014, 9:00-13:00

PGM Working Group + Exposure Scenario Meeting

1. Welcome & Introduction

Dave Boyd

- Confidentiality and Competition Law
- Tour de table and apologies
- Approval of the Agenda
- Approval of the minutes of last meetings (6 Nov 2013 and 24 June 2014) and status of action items
- Scope update

Agenda

1. Welcome and introduction
2. Substance identification and sameness of PGMs
3. PGM testing programme
4. Current status of PNEC and DNEL refinement
5. Identified uses
6. Environmental emissions PGMs
7. Occupational exposure PGMs
8. AOB, next meetings/calls and closing remarks

Actions 6 November 2013 (1)

Action	Who?	Status
Revise minutes 19 June PGM WG + ES meeting and put on agenda of the next meeting for approval	PMC Sec	today
Substance identification and sameness		
Report the composition of the reference samples used for testing in the ID cards	PMC Sec	Ongoing
Check if registrants handle the solid form of Diammineplatinum (II) nitrite	PMC Sec	
PGM testing programme		
Inform PGM WG members on outcome of 7 Nov PGM tox expert group meeting	PMC Sec	Done
Circulate the DDP sediment toxicity report to the PGM WG for information	PMC Sec	
Circulate updated quotes and final recommendation for PGM ecotoxicity testing for approval	PMC Sec	
Inform PMC Sec if additional irritation/corrosion tests are available on PGMs	PGM WG members	Done
Scope of exposure assessment		
Follow up scope of exposure assessment with EBRC	PMC Sec	Ongoing
Environmental emissions of Pd and Pd compounds		
Make separate monitoring paper for STP study with more details on transport costs etc.	WCA	Done
Check if it will be possible to perform the STP study at the municipal STP in the Hanau industrial park	WCA/PMC Sec	Done
If STP study can be done in Hanau, perform a brief study of the known PGM processing companies there (in parallel with STP study) to check if all PGMs come from them	WCA	Done
Write SOP for site-specific sample collection	WCA	Done
Do background check on Environmental Sciences Group (ESG)	PMC Sec	Done
Update the costs in the monitoring paper to include the costs of analysing other precious metals and include estimated costs for transport of samples to laboratory	WCA	Done
Make overview of sites where monitoring of other PGMs will likely be needed based on existing data	WCA	Decision left to companies
Initiate STP removal study and site monitoring for all PGMs in parallel	WCA with PGM WG members	Done/ Ongoing

Actions 6 November 2013 (2)

Action	Who?	Status
Occupational exposure of Pd and Pd compounds		
Follow up evaluation of usability IPA data	EBRC	Ongoing
Use and exposure/emission data collection other PGMs		
Develop questionnaire for the collection of use information of other PGMs	WCA/EBRC	Done
Develop questionnaire for the collection of exposure/emission data of other PGMs	WCA/EBRC	
Other		
Sit together with EBRC to set priorities and to prepare all necessary PGM registrations in time for the 2018 deadline	PMC Sec	Done
Decide on monitoring programme by e-mail	PGM WG	Done
Track outcome of Eurométaux CHESAR evaluation project	PMC Sec	Ongoing

Overview responses on questionnaires

Questionnaire collecting information on	Number of questionnaires completed	Number of outstanding questionnaires/responses	Deadline
Uses Pt substances	57 (from 22 manufacturers/DUs)	- (questionnaires received for all Pt substances, all to check if their uses are covered)	15 Aug
Env emissions Pt, Rh and Ru substances	9	6	29 Aug
Occ exposure Pt substances	8	7	19 Sep
Production of nano-forms	9	6	30 Sep

Please return outstanding questionnaires ASAP.

Thank you!

2. Substance identification and sameness of PGMs

Klaus ROTHENBACHER

Katrien ARIJS

2.1. ID cards

- Ongoing:
  - ID cards drafted for most PGMs in the testing programme: updated versions will be circulated Q4 2014
  - ID cards for remaining PGMs will be circulated for input Q4 2014 / Q1 2015

2.2. Sameness: Update on diammonium hexachlororuthenate

Expert calls held 3rd July and 30th September:

- Background
  - Substance properties 'diammonium hexachlororuthenate' did not match MSDS
  - Additional analytical work conducted to confirm substance ID (elemental analysis, IR, XRD, etc.)
  - Data discussed and reviewed at several expert meetings
- Conclusions
  - 'Diammonium hexachlororuthenate' (CAS 18746-63-9, UVCB) is in fact 'Tetraammonium decachloro-mu-oxodiruthenate' (CAS 85392-65-0, mono-const. subst.)
  - Currently reviewing impact on testing programme

2.3. Karstedt concentrate: Update on discussions with Reconsile

- Status
  - Agreed on LR: Reconsile consortium
  - Memorandum of Understanding in preparation
  - Informal mtg PMC/ Reconsile on 9th Sept. 2014 to discuss technical details
- Points of discussion
  - UVCB or multi-const. subst.
  - Process definition (in case UVCB)
- Next steps
  - Finalise MoU
  - Agree on registration details
  - Share data
  - Conduct data gap analysis

2.4. Consideration of PGM nano forms

- EC recommendation on the definition of a nanomaterial:

'A natural, incidental or manufactured material containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm - 100 nm. In specific cases and where warranted by concerns for the environment, health, safety or competitiveness the number size distribution threshold of 50 % may be replaced by a threshold between 1 and 50 %.'

-> Based on the number of particles, not their mass -> very small mass % of nanoparticles can already make a material fall into the nano range!

-> Covers also non-intentionally manufactured particles (PGM blacks?!)

2.4. Consideration of PGM nano forms

- Questionnaire circulated:
  - Which PGM substances are produced in the nano-form (PGM blacks/others) and at what tonnage?
  - Production of these nano-forms hydro- or pyro-metallurgical?
  - Information on particle size distribution
  - Information on surface area
  - Information on composition (e.g. amounts of oxide)
- Feedback received
  - Almost no production of nanomaterials reported
  - No measured data provided (number based PSD, surface area, etc.)
- Experience from Ag registration
  - Most registrants underestimate impact of nano assessment
  - Need **measured data**
  - PMC developed specific guidance for evaluating if materials fall under nano-recc.

2.5. Scope update – substance changes

- No more registrants for
  - **Iridium dioxide (CAS** 12030-49-8)
  - **Dichlorotris(triphenylphosphine)ruthenium (CAS 15529-49-4)**
  - **Di-μ-chlorobis((1,2,5,6-eta)cycloocta-1,5-diene))diiridium (CAS 12112-67-3)**
  - **Iridium dioxide** (CAS 12030-49-8)
  - **Palladium dioxide (CAS 12036-04-3)**
    - Proposal to delete from PMC scope
    - No LR had been nominated so far, no testing conducted

➢ **Any objections from the WG?**

- Next steps
  1) Inform Management Committee
  2) Inform General Assembly

2.5. Scope update – SCC

New practical guide 16 released by ECHA

- "How to assess whether a substance is used as an intermediate under strictly controlled conditions and how to report the information for the intermediate registration in IUCLID"
- http://echa.europa.eu/documents/10162/13655/pg16_intermediate_registration_en.pdf
- Cf. Eurometaux assessment (background doc.)
- No significant changes to our scope: conditions to meet SCC have not changed

2.5. Scope update – tonnage changes

- **Dipotassium hexachloropalladate** (CAS 16919-73-6): highest tonnage band changed from 10-100 t/a to 100-1000 t/a
  - ➢ Registration deadline: 2013 (= ASAP)
  - ➢ Annex IX. Need to assess impact on ITS: this afternoon
- **Dihydrogen hexahydroxyplatinate, compound with 2-aminoethanol (1:2)** (CAS 68133-90-4): highest tonnage band changed from 1-10 t/a to 10-100 t/a
  - ➢ Need to assess impact on ITS: this afternoon
- **Ruthenium trichloride** (CAS 10049-08-8): highest tonnage band changed from 1-10 t/a to 10-100 t/a
  - ➢ Need to assess impact on ITS: this afternoon
- Follow up possible scope change resulting from **diammonium hexachlororuthenate** sameness discussions

  Need to assess impact on ITS: this afternoon

3. PGM testing programme

Klaus ROTHENBACHER

3.1. PGM Ecotoxicity Testing

PMRC, Brussels, 9 October 2014

Ecotoxicity Testing Programme: Progress To Date

Metal	Compound	Test	Progress	Result	Notes
Palladium	Diamminedichlororpalladium (DDP)	Algae Inhibition of Growth (72 hours)	Completed April 2012 [Fraunhofer]	EC50 Yield = 4.03 µg/L (2.03 as Pd) EC50 Growth Rate = 5.88 µg/L (2.96 as Pd) NOEC Yield & Growth Rate = 2.64 µg/L (1.33 as Pd)	Most sensitive taxonomic group Lowest acute EC50 and long-term NOEC
		Daphnia Immobility (48 hours)	Completed June 2012 [Fraunhofer]	EC50 = 69.91 µg/L (35.19 as Pd)	-
		Fish Mortality (96 hours)	Completed June 2012 [Fraunhofer]	EC50 = 306 µg/L (154 as Pd)	-
		ASRIT (3 hours)	Completed March 2012 [Laus]	EC50 = 61 mg/L (30.5 as Pd) NOEC = 18 mg/L (9 as Pd)	-
		Daphnia Reproduction (21 days)	Completed July 2014 [Fraunhofer]	NOEC = >28.39 µg/L (>14.2 as Pd)	Definitive test concentrations selected based on slight (equivocal) effect at 10 µg/L in range-finder. Analysis proved challenging - ammonia stabilisation and Cs std eventually successful Considerable loss of test material over 3 day renewal frequency – results based on mean measured concentrations
		Chironomid Sediment Toxicity (28 days)	Completed November 2013 [Fraunhofer]	NOEC = >60 µg/L (>30 as Pd)	60 µg/L was the maximum concentration that could be maintained in sediment .
	Palladium di (4-oxopent-2-en-2-oate) (PdAcAc)	*Daphnia* Immobility (48 hours)	Completed July 2014 [Fraunhofer]	EC50 = 217 µg/L (76 as Pd)	-

Ecotoxicity Testing Programme: Progress To Date

Metal	Compound	Test	Progress	Result	Notes
Platinum	Dihydrogen hexahydroxyplatinate (HHPA)	Algae Inhibition of Growth (72 hours)	Test Completed September 2014 [Fraunhofer] Not yet reported	EC50 Yield = 2239 µg/L (3455 as Pt) EC50 Growth Rate = 10225 µg/L (6626 as Pt) NOEC Yield & Growth Rate = 946 µg/L (613 as Pt)	Some issues with recovery of test substance, in range-finder . Additional stability trials conducted. Acceptable recoveries obtained in definitive test.
		Daphnia Immobility (48 hours)	Completed August 2014 [Fraunhofer] Not yet reported	EC50 = 742 µg/L (481 as Pt)	Some issues with recovery of test substance, in range-finder . Additional stability trials conducted. Acceptable recoveries obtained in definitive test with fresh solution but rapid loss of test material over 24 hours. Only 30% effect at highest test concentration therefore EC50 is extrapolated. Results of RF suggested 40% effect at 68 µg/L Pt but only 30% effect at 481 µg/L Pt in definitive (geometric mean concentrations).
		ASRIT (3 hours)	Scheduled October 2014 [Laus]	-	-
	Diammonium hexachloroplatinate (AHCPt)	*Daphnia* Immobility (48 hours)	Completed August 2014 [Fraunhofer] Not yet reported	EC50 = 284 µg/L (108 as Pt)	-

Ecotoxicity Testing Programme: Progress To Date

Metal	Compound	Test	Progress	Result	Notes
Ruthenium	Diammonium hexachlororuthenate (AHCRu)	Algae Inhibition of Growth (72 hours)	Not yet scheduled [Fraunhofer]	-	Awaiting test material.
		Daphnia Immobility (48 hours)	Not yet scheduled [Fraunhofer]	-	
		Fish Mortality (96 hours)	Not yet scheduled [Fraunhofer]	-	
		ASRIT (3 hours)	Not yet scheduled [Fraunhofer]	-	
Rhodium	Diammonium sodium hexakis (nitrito-N) rhodate (Rh Nitrite)	*Daphnia* Immobility (48 hours)	Completed July 2014 [Fraunhofer]	EC50 = 81.3 mg/L (11.8 as Rh)	-

Genotoxicity Studies
(Covance)

Substance and Test	Result	Status*
Diammonium hexachlororuthenate (CAS 18746-63-9)		
Ames – OECD 471		Awaiting TS
In vitro micronucleus test – OECD 487		Awaiting TS
In vitro gene mutation – OECD 476		Dependent on above
Dihydrogen tetrachloropalladate (2-) (CAS 16970-55-1)		
In vitro micronucleus – OECD 487		Ongoing
In vitro gene mutation – OECD 476		Dependent on above
Tetraamminepalladium(II) diacetate (CAS 61495-96-3)		
In vitro gene mutation – OECD 476		Ongoing
Palladium (II) di(4-oxopent-2-en-2-oate) (CAS 14024-61-4)		
Ames – OECD 471	Negative	22-Oct-13
In vitro micronucleus test – OECD 487	Negative	22-Oct-13
In vitro gene mutation – OECD 476	Negative	9-Jun-14

* Report issue date

Genotoxicity Studies
(Covance)

Diammonium hexachloropalladate (CAS 19168-23-1)		
Ames – OECD 471	Negative	7-Jan-14
In vitro micronucleus test – OECD 487	Negative	6-Jan-14
In vitro gene mutation – OECD 476	Negative	16-Apr-14
Dihydrogen hexahydroxyplatinate (CAS 51850-20-5)		
Ames – OECD TG471	Mutagenic	3-Dec-13
In vitro micronucleus test – OECD 487	Positive	22-Jan-14
Diammonium sodium hexakis(nitrito-N)rhodate (CAS 64164-17-6)		
Ames – OECD TG471	Negative	25-Apr-14
In vitro micronucleus test – OECD 487	Negative	15-Jul-14
In vitro gene mutation – OECD 476	Negative	2-Oct-14
Palladium nitrate (CAS 10102-05-3)		
In vitro micronucleus test – OECD 487	Negative	11-Jul-14
In vitro gene mutation – OECD 476	Negative	Reporting
Dirhodium trisulphate (CAS 10489-46-0)		
Ames – OECD 471		Awaiting TS

Sensitisation

Substance	Result	Status
Palladium (II) di(4-oxopent-2-en-2-oate)	Sensitiser based on RF studies	Complete 2-Apr-14
Diammonium hexachlororopalladate x 2	Sensitiser	Complete 3-Dec13 30-Jan-14
Diammonium sodium hexakis(nitrito-N)rhodate	Negative	Complete 6-Nov-13
Diammonium hexachlororuthenate		Awaiting TS

Acute, Sub-acute and Reproduction Studies

Studies being conducted at two laboratories as follows:

- CiToxLAB – palladates and rhodate
  - Diamminedichloropalladium
  - Palladium (II) di(4-oxopent-2-en-2-oate)
  - Palladium dihydroxide
  - Diammonium hexachloropalladate
  - Tetraamminepalladium(2+) dichloride
  - Diammonium sodium hexakis(nitrito-N)rhodate
- LPT – platinates and rhuthenium:
  - Diammonium hexachlororuthenate
  - Dihydrogen hexahydroxyplatinate
  - Diammonium hexachloroplatinate
  - Tetraammineplatinum dinitrate

Diammonium hexachloropalladate

Test	Vehicle	Dose levels	Result	Status
Preliminary repeat dose oral toxicity	Corn oil	100, 300, 600	100 suitable as high dose, 300 and 600 not tolerated	Reporting
Repeated dose oral toxicity – OECD 407	Corn oil	10, 30, 100	Kidney and stomach pathology	Awaiting histopath
Combined repeat dose oral toxicity with repro/dev screen – OECD 421	Corn oil	10, 30, 100		Awaiting data and histopath

Tetraamminepalladium dichloride

Test	Vehicle	Dose levels	Result	Status
Preliminary repeat dose oral toxicity	pH adj water (pH 9)	100, 300	100 suitable as high dose, 300 not tolerated	Reporting
Combined repeat dose oral toxicity with repro/dev screen – OECD 421	pH adj water (pH 9)	4, 20,100		Awaiting histopath

Palladium (II) di(4-oxopent-2-en-2-oate)

Test	Vehicle	Dose levels	Result	Status
Acute oral toxicity - OECD 425	Distilled water	550, 2000	MLD 2000 mg/kg	Complete 17-Dec-13
Acute dermal toxicity - OECD 402	NA	2000	MLD > 2000 mg/kg	Complete 24-Apr-14

Diammonium sodium hexakis(nitrito-N)rhodate

Test	Vehicle	Dose levels	Result	Status
Acute oral toxicity - OECD 425	1% MC	175, 550, 2000	LD50 >2000 mg/kg	Complete 15-Jul-14
Preliminary repeat dose oral toxicity	1% MC	1000	1000 suitable as high dose	Reporting
Combined repeat dose oral toxicity with repro/dev screen – OECD 422	1% MC	100, 300, 1000	(Includes satellite females for toxicity assessment)	Awaiting histopath

Palladium hydroxide

Test	Vehicle	Dose levels	Result	Status
Preliminary repeat dose oral toxicity	Corn oil	1000	1000 suitable high dose. No need for satellite females for toxicity	Complete 16-Jun-14
Combined repeat dose oral toxicity with repro/dev screen – OECD 422	Corn oil	100, 300, 1000		Awaiting histopath

Dihydrogen hexahydroxyplatinate

Test	Vehicle	Dose levels	Result	Status
Preliminary repeat dose oral toxicity	Corn oil	1000	1000 suitable as high dose. No need for satellite females for toxicity.	Complete 25-Sep-14
Combined repeat dose oral toxicity with repro/dev screen – OECD 422	Corn oil	100, 300, 1000		In-life

Diammonium hexachloroplatinate

Test	Vehicle	Dose levels	Result	Status
Preliminary repeat dose oral toxicity	Corn oil	100, 300, 600	100 suitable as high dose, 125 and 200 not tolerated	Reporting
Repeated dose oral toxicity – OECD 407	Corn oil	10, 30, 100		Awaiting histopath
Combined repeat dose oral toxicity with repro/dev screen – OECD 421	Corn oil	10, 30, 100		In-life

Tetraammineplatinum dinitrate

Test	Vehicle	Dose levels	Result	Status
Preliminary repeat dose oral toxicity	pH adjusted aq HNO_3	500, 750, 1000	1000 suitable as high dose	Complete 22-Aug-14
Combined repeat dose oral toxicity with repro/dev screen – OECD TG421	pH adjusted aq HNO_3	50, 250,1000	Systemic NOAEL 250 Repro NOAEL 1000 Offspring NOAEL 1000	Reporting

Diammonium hexachlororuthenate

Test	Status
Acute oral toxicity (OECD 425)	Awaiting TS
Preliminary repeat dose oral toxicity	Awaiting TS
Repeated dose oral toxicity – OECD TG407	Study design dependent on results of DRF
Repro/dev toxicity screen – OECD 421	Study design dependent on results of DRF
Combined repeat dose oral toxicity with repro/dev screen – OECD 422	Study design dependent on results of DRF

3.5. Need for acute dermal toxicity tests

No acute dermal test required for substances that are not toxic in acute oral tox. tests (limit dose 2000 mg/kg)

- Agreed by Caracal July 2014
- Reach Annex VIII will be amended
- In-line with our testing approach = no changes required

4. Current status of PNEC and DNEL refinement

Klaus ROTHENBACHER

4.1. PNEC derivation

Status

- Ecotox studies to be completed in Q4 2014, as scheduled
- Pd: tests completed, read-across from DDP confirmed, PNECs agreed in Aug. 2014
- Pt: derive PNECs in Q1 2015, when above studies completed
- Ru: testing on hold until substance ID clarified, restart now
- Rh: additional study (algae) proposed to confirm read-across, (to be discussed with expert group this afternoon)

Next steps

- Complete scheduled testing in Q4
- Initiate Ru testing
- Initiate additional Rh test (if approved)
- Derive Pt PNECs in Q1 2015, derive other PNECs once data is available (Q1/2 2015)

4.2. DNEL derivation

Status

- Acute-/ repeated dose-/ reprotox studies scheduled for
  - Palladium (II) di(4-oxopent-2-en-2-oate)
  - Palladium dihydroxide
  - Diamminedichloropalladium
  - Diammonium hexachloropalladate
  - Tetraamminepalladium(2+) dichloride
  - Diammonium sodium hexakis(nitro-N)rhodate
  - Diammonium hexachlororuthenate
  - Dihydrogen hexahydroxyplatinate
  - Diammonium hexachloroplatinate
  - Tetraammineplatinum dinitrate
- Programme on schedule, except for AHCRu (no test substance available)
- Reprotox study (OECD 421) on AHCPt and RDT/repro study (OECD 422) on HHPA currently ongoing
- All other studies finished in-life phases, results will be available in Q4 2014

Next steps

- Derive DNELs once above hazard assessment completed
- Planned for 2015-17

4.3. CLP update – classification changes since Feb 2012 (1)

- **Tetraammineplatinum dinitrate** (CAS 20634-12-2):
  - Self-reactive Type A (H240)
  - ~~Skin Irrit. 2 (H315)~~
  - ~~Eye Dam. 2 (H319)~~
  - EUH001: Explosive when dry***
  - EUH044: Risk of explosion if heated under confinement***
  - Aq. chronic 3 (H412)
- **Diamminedichloropalladium** (CAS 14323-43-4):
  - Acute Tox. 4 (H302) (oral)
  - Eye Dam 1 (H318)
  - Aq. Acute 1 (H400)
  - ~~Aq. Chronic 4 (H413)~~ -> Aq. Chronic 1 (H410)
  - Acute M-factor ~~10~~ -> 100
  - Chronic M-factor ~~10~~ -> 100
- **Palladium (II) di(4-oxopent-2-en-2-oate)** (CAS 14024-61-4):
  - Flam. Solid 1 (H228)
  - Self heat. 1 (H251)
  - ~~Aq. chronic 4 (H413)~~ -> based on acute Daphnia result (Fraunhofer 2014) and read across:
    - Aq. Acute 1 (H400)
    - Aq. Chronic 1 (H410)
    - Acute M-factor 10
    - Chronic M-factor 10
  - Skin Sens 1A (H317)
  - Acute Tox. 4 (H302) (oral)
  - Eye Dam 1 (H318)

4.3. CLP update – classification changes since Feb 2012 (2)

- **Tetraamminepalladium (II) nitrate** (CAS 13601-08-6), **Tetraamminepalladium(2+) dichloride** (CAS 13815-17-3), **Tetraamminepalladium(2+) diacetate** (CAS 61495-96-3):
  - Acute M-factor ~~1~~ -> 10
  - Chronic M-factor ~~1~~ -> 10
- **Palladium sulphate** (CAS 13566-03-5), **Palladium dinitrate** (CAS 10102-05-3), **Dirhodium trisulphate** (CAS 10489-46-0), **Rhodium trinitrate** (CAS 10139-58-9), **Ruthenium trichloride** (CAS 10049-08-8), **Tris(nitrato-O)nitrosylruthenium** (CAS 34513-98-9):
  - Skin Corr. ~~1A~~ -> 1B (H314)
- **Palladium dihydroxide** (CAS 12135-22-7):
  - ~~Aq. Chronic 4 (H413)~~
  - Classification: none
- **Diammonium hexachloropalladate** (CAS 19168-23-1), **Dipotassium hexachloropalladate** (CAS 16919-73-6):
  - Acute Tox. 4 (H302) (oral)
  - Skin Irrit. 2 (H315)
  - Eye Dam. 1 (H318)
  - Skin Sens. 1B (H317)
  - Aq. acute 1 (H400)
  - Aq. chronic 1 (H410)
  - Acute M-factor 10
  - Chronic M-factor 10

4.3. CLP update – classification changes since Feb 2012 (4)

- **Diammonium sodium hexakis(nitrito-N)rhodate** (CAS 64164-17-6):
  Oxid. Solid 3 (H272)
  Self heat. 1 (H251)
  Aq. chronic 2 -> proposed based on read across from rhodium trinitrate **Discuss way forward this afternoon**

-> Follow up with the corresponding LRs regarding an update of the CLP notification

5. Identified uses

Becky MARKS
Daniel VETTER
Jutta SCHADE

Content

wca

- Update of uses for Pd and Pd substances
- Article service life
- Use collation for Pt substances
- Requirement for exposure assessment

5.1. Pd and Pd substances: Update of declared uses

- IUCLID updated since Pd uses originally collected
- Section 3.5 IUCLID now split
  - » Manufacture
  - » Industrial use
  - » Professional use
  - » Consumer use
  - » Article service life
- Some use descriptors now obsolete for certain uses
- Declared uses for Pd substances updated
- To be circulated for comment / updates

Intermediate uses

- Intermediate definition:

a *substance that is manufactured for and consumed in or used for chemical processing in order to be transformed into another substance*

- For intermediate uses suggest to include PC 19 Intermediates only
- For technical function include Íntermediates'only

Article service life

- Article service life not included in original use collection
- Article service life added for handling of Pd containing metals and alloys eg in jewellery, ingots, coins
  - » Use descriptors required
- Article service life for automotive catalysts
  - » Palladium
  - » Others?
- Surface treated articles
  - » Recommend article service life included even if transformed to another substance

Updated Pd uses: Ammonium hexachloropalladate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial	8, 9	3, 9, 22, 27a	6a	NA	19

Updated Pd uses: Dichlorobistriphenylphosphine Palladium

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial[1,2]		8b, 9	6a	NA	19
Catalyst - Industrial	8, 9, 24	1, 9, 15	4, 5	NA	21

Updated Pd uses: Dihydrogen tetrachloropalladate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,3,4]	8, 9, 10, 14	1, 3, 4, 8a, 8b, 9, 15, 27b	6a		14, 19, 21
Intermediate - Professional[1,2,3,4]	9, 14	1, 3, 8b, 15, 27b			
Metal surface treatment – Industrial	10	4, 8b, 9, 13, 19	4, 5		14
Article service life of surface treated products					

Updated Pd uses: Dipotassium hexachloropalladate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial[1,2]		4, 8a, 8b, 9, 26	6a		19

Updated Pd uses: Disodium tetrachloropalladate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial[1,2]	8, 9	1, 3, 4, 8b, 9	6a		19

Updated Pd uses: Palladium (II) diacetate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial	9	1, 3, 5, 8b, 9	6a		19
Catalyst - Industrial	8, 9, 24	1, 4, 8b, 9, 15	4, 5		20, 21, 0 (catalyst)
Reactive processing aid - Industrial	9, 24	3, 8b	6b		

Updated Pd uses: Palladium diammine dichloride

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2, 4]	8, 9, 10, 14	3, 4, 8a, 8b, 9, 15, 26	6a		14, 19, 20, 21, 0 (catalyst)
Electroplating or metal surface treatment- Industrial	15, 16	4, 5, 8b, 13, 26, 0 (Cleaning)	5, 6a	2, 7	14, 19
Article service life of surface treated products					

Updated Pd uses: Palladium

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2, 3		
Intermediate - Industrial[1,2,3, 4]	8, 9, 10, 14	1, 3, 4, 5, 8b, 9, 14, 15, 21, 24, 26	6a	1, 3, 7	7, 19, 21
Production and use of Pd metal containing catalysts in the pharmaceutical industry - Industrial	9, 10, 0 (Pharmaceutical industry)	1, 2, 3, 4, 8a, 8b, 9, 13, 14, 15, 27a	4, 6a		3, 19, 0 (catalytic active substance)
Production and use of Pd metal containing catalysts in catalytic converters- Industrial	9, 10	1, 2, 3, 4, 8a, 8b, 9, 13, 14, 15, 27a	4, 6a		3, 19, 0 (catalytic active substance)
Metal Surface treatment - Industrial	15, 24	2, 8b, 13, 26, 0 (cleaning)	5	7	14, 19

Updated Pd uses: Palladium

Use	SU	PROCs	ERCs	AC	PC
Reforming of Pd - Industrial	14, 15, 16, 17, 20, 24, 0 (precious metals production / Banks / C32.1.2 - Manufacture of jewellery and related articles)	1, 3, 4, 5, 6, 8a, 8b, 9, 10, 13, 14, 19, 21, 22, 23, 24, 25, 26, 27a, 27b, 0 (melting process / printing)	4, 5, 7, 0 (development of semifinished products)	1, 2, 7, 0 (precious metal products, coins and medals, jewellery, investment ingots, technical products, dental products)	1, 7, 91, 14, 21, 33, 38, 0 (precious metal products, coins and medals, jewellery, investment ingots, technical products, dental alloys, sheet / wire)
Reforming of Pd - Professional	14, 15, 16, 17, 24, 0 (C32.1.2 - Manufacture of jewellery and related articles)	4, 5, 6, 8a, 8b, 9, 10, 13, 19, 22, 24, 25, 26, 0 (melting process / printing)	8a, 8c, 8d, 10b,	1, 2, 7, 0 (sensor applications)	1, 7, 9a, 14, 21, 33, 38, 0 (jewellery)
Manufacture of Pd containing alloys - Industrial	2a, , 14, 15, 16, 17, 20, , 0 (precious metals production / jewellery use)	1, 3, 4, 5, 6, 8a, 8b, 9, 13, 14, 22, 23, 24, 25, 26, 0 (Alloy(ing) / mechanical development of semifinished products)	6a, 0 (development of semifinished products)	3, 7, 0 (precious metal products, jewellery, dental alloys, technical products)	7, 9a, 14, 0 (preciousmetal products, jewellery, dental alloys, technical products)
Manufacture of Pd containing alloys - Professional	15	5, 22, 24, 26	8a, 8d	7	7, 0 (precious metal products)

Updated Pd uses: Palladium

Use	SU	PROCs	ERCs	AC	PC
Handling and use of Pd containing materials – Industrial (Article service life)	*No relevant use descriptors supplied. However, uses in Trading, Surface treated materials, Technical Products, Precious metal products, Coins, Medals, Electronics, Dental alloys and Jewellery were indicated*				
Handling and use of Pd containing materials – Professional (Article service life)					
Handling and use of Pd containing materials – Consumer (Article service life)					
Article service life of surface treated products					
Article service life of automotive catalysts					

Updated Pd uses: Palladium (II) di(4-oxopent-2-en-2oate)

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial[1,2]	9	3, 4, 8b, 9	6a		19
Catalyst - Industrial	8, 9, 24	1, 9, 15	4, 5		21

Updated Pd uses: Palladium chloride

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,4]	8, 9, 10, 13	1, 2, 3, 4, 8b, 9, 15, 26	6a	2, 4	9a, 14, 15, 19, 21
Catalyst - Industrial	8, 10	1, 3, 15	4, 5, 6a, 7	2, 4	9a, 14, 15, 19, 21
Metal Surface Treatment - Industrial	4, 10, 11, 14, 15, 16, 17, 23	2, 3, 4, 5, 7, 8a, 8b, 9, 13, 15, 19, 26, 0 (cleaning)	4, 5, 7	2, 3, 4, 7	9a, 14, 15, 19, 21, 33
Metal Surface Treatment - Professional	10, 16	2, 4, 5, 8b, 9, 13, 15, 26		2, 7	14, 15, 33

Updated Pd uses: Palladium chloride

Use	SU	PROCs	ERCs	AC	PC
Non-metal surface treatment - Industrial	10, 16	1, 2, 3, 4, 5, 7, 8b, 9, 13, 15, 19, 26	5, 6a, 6b, 7	2, 4, 7	9a, 14, 15, 21, 33
Manufacture of Inks and paints - Industrial	9, 16, 24	4, 9, 15, 26, 27b	5, 6a		
Use of Inks and paints - Industrial	Confirmed use, but use descriptors not provided				9a, 14, 19, 32
Use of Inks and paints - Consumer	Confirmed use, but use descriptors not provided			2, 4	9a, 14, 19, 32
Article service life of surface treated products					

Updated Pd uses: Palladium dinitrate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,3,4]	8, 9, 14	1, 3, 4, 5, 8a, 8b, 9, 15, 21, 27b	6a	1	19, 21
Intermediate - Professional[1,2,3,4]	9, 14	1, 3, 8b, 15, 27b			
Manufacture of Pd dinitrate containing catalysts - Industrial	8, 9, 16, 17	2, 3, 4, 5, 8a, 8b, 9, 13, 19, 22, 0 (Cleaning)	5,	1	14, 19, 20, 0 (catalyst products)
Use of Pd dinitrate containing catalyst - Industrial/Professional/Consumer	*Implied use*				
Article service life of Pd dinitrate containing catalysts					

Updated Pd uses: Palladium sulphate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2]	9, 10	2, 3, 4, 8b, 9, 15, 26	6a		14, 19, 21
Used in galvanation or metal surface treatment - Industrial	10, 15	2, 4, 8b, 9, 13, 19, 26	4, 5	2	14
Article service life of surface treated products					

Updated Pd uses: Palladium Hydroxide

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,3]		3, 4, 5, 8b, 9, 21	6a		19

Updated Pd uses: Palladium oxide

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,4]		4, 5, 8b, 9	6a		19
Manufacture of Pd oxide containing catalyst - Industrial		1, 2, 4, 5, 8b, 9, 13, 21,	5,	1	3
Use of Pd oxide containing catalyst – Industrial/Professional/Consumer	*Implied use*				
Article service life of Pd oxide containing catlysts					

Updated Pd uses: Tetraammine Palladium diacetate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,4]	8, 9	1, 3, 4, 8b, 9, 15, 22	6a		19, 21

Updated Pd uses: Tetraammine Palladium dichloride

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial[1,2,3,4]	8, 9, 10	2, 3, 4, 5, 8a, 8b, 9, 15, 19, 26	6a		14, 19
Metal Surface Treatment - Industrial	10, 15	2, 4, 8b, 9, 13, 19, 26, 27b, 0 (Rinsing), 0 (Cleaning)	4, 5	2, 7	14, 19
Metal Surface Treatment - Professional	15	8b, 13, 26, 27b, 0 (rinsing)			14, 19
Article service life of surface treated products					

Updated Pd uses: Tetrammine palladium dihydroxide

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Intermediate - Industrial[1,2]	9	4, 8b, 9	6a		19

Updated Pd uses: Tetraammine palladium dinitrate

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,3,4]	8, 9	1, 3, 4, 8b, 9, 15, 22	6a		19. 21

Updated Pd uses: Tetrakis(triphenylphosphine) palladium

Use	SU	PROCs	ERCs	AC	PC
Manufacture of the substance (as such)	These descriptors cannot be reported		1		
Formulation	These descriptors cannot be reported		2		
Intermediate - Industrial[1,2,3]	9	1, 3, 8b, 9	6a		20
Use as a catalyst - Industrial	8, 9, 24		4, 5		21

5.2. Use collation Pt substances

- Questionnaires received for all Pt substances
- Uses grouped wherever possible
- Requests for follow up information sent
- Full list circulated for comment

Requirement for exposure assessment

- Use as an intermediate is covered in manufacturing /processing exposure scenario (for environment) if conducted at same site
- Exposure assessment required for some downstream uses
  - » surface treatment,
  - » use as catalysts
- Different ways to quantify the downstream user scenario
  - » SpERCs (e.g. Surface treatment, as for Pd)
  - » Collect downstream use data

Requirement for exposure assessment

- Article service life:
  - » Environmental exposure assessment required for ASL of environmental catalysts
  - » Qualitative assessment may be adequate for handling of Pd containing articles e.g. jewellery ingots

Diammonium hexachloroplatinate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of substance as such)	These descriptors cannot be reported		1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Use as an intermediate – Industrial[2,3,4]	9, 14	3, 4, 8a, 8b, 0 (Cleaning)	6a	Intermediates	19	These descriptors cannot be reported

Dihydrogen hexahydroxyplatinate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of the substance as such)	These descriptors cannot be reported	1, 3, 4, 5, 8a, 8b, 9, 15, 23, 26, 0 (Cleaning operations)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Use as intermediate – industrial[1,2,3,4]	8, 9	3, 4, 8a, 8b, 9, 26, 0 (Cleaning)	6a	Intermediates	19, 21	These descriptors cannot be reported

Dihydrogen hexahydroxyplatinate with 2-aminoethanol

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of substance as such)	These descriptors cannot be reported	1, 3, 4, 8a, 8b, 9, 14, 15, 0 (Cleaning)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Formulation of catalyst – Industrial	These descriptors cannot be reported	1, 3, 4, 8b, 9, 14	2	Process regulators, other than polymerization or vulcanization	0 (UN Code P15500)	None reported
Downstream use of catalyst – Industrial	8, 9	3, 4, 8a, 8b, 9	6b	Other: Use as such in catalysts	0 (UN Code P15500)	None reported
Use as intermediate – industrial[1,2,3,4]	9, 10	3, 4, 5, 8a, 8b, 9, 13, 15, 26, 27b, 0 (Cleaning)	6a	Intermediates	19	These descriptors cannot be reported

Dipotassium hexachloroplatinate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of substance as such)	These descriptors cannot be reported	3, 4, 8a, 8b, 9, 15, 0 (Cleaning)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Use as an intermediate - Industrial[1,2,3,4]	8, 9	3, 4, 8a, 8b, 9, 26, 27b, 0 (Cleaning and maintenance)	6a	Intermediate	19	These descriptors cannot be reported

Hexachloroplatinic acid

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of substance as such)	These descriptors cannot be reported	3, 4, 8b, 9, 10, 15, 26, 0 (Cleaning)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Use as an intermediate - Industrial[1,2,3,4]	9, 14	1, 3, 4, 5, 8a, 8b, 9, 10, 15, 26, 0 (Cleaning operations)	6a	Intermediate	19, 21	These descriptors cannot be reported

Platinum dioxide

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of substance as such)	These descriptors cannot be reported	1, 3, 4, 8a, 8b, 9, 14, 15, 26	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Formulation of catalyst – Industrial	These descriptors cannot be reported	1, 3, 4, 8b, 9, 14	2, 6a	Process regulators, other than polymerization or vulcanization	29, 0 (UCN code P15500)	None reported
Downstream use of catalyst - Industrial	8, 9	1, 2, 3, 8b, 9, 21	6a, 6b	Process regulators, other than polymerization or vulcanization	29, 0 (UCN code P15500)	1
Article Service Life – Catalyst	Not reported	Not reporter	10a	Other: Catalyst or process regulator	These descriptors cannot be reported	1

Platinum

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture and recycling (of the substance as such)	9, 14	1, 3, 4, 8a, 8b, 9, 14, 15, 19, 22, 23, 25, 26, 27a, 27b, 0 (Cleaning)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Alloy production – industrial	2b, 8, 14, 15, 16, 17, 20, 0 (UN C24 4.1), 0 (Automotive)	2, 3, 4, 6, 8b, 9, 14, 15, 19, 21, 22, 23, 24, 25, 26, 27a, 27b	5	Other: alloy Other: component of alloy	7	None reported
Reshaping and reforming of Pt metal and alloys– Industrial	16, 0 (Banks K64)	1, 4, 14, 22, 23, 24, 25, 26	6a, 7, 12a, , 0 (Production of cast ingots and minted ingots)	Other: Makes an alloy with other metals Intermediates Fertilisers Other: Used as massive object	7, 12, 19	7
Reshaping and reforming of Pt metal and alloys– Professional	14, 15, 17	3, 4, 6, 8a, 9, 14, 15, 21, 22, 23, 24, 26, 0 (Cleaning)	8c	Other: jewellery Other: Component of alloy Other: investment products Other: Material Other: Alloy	7	None reported
Formulation of catalyst - Industrial	These descriptors cannot be reported	1, 3, 4, 8b, 9, 14	2	Other: catalyst or process regulator	0 (UCN code P15500)	None reported

Platinum

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Downstream use of catalyst - Industrial	8, 9	1, 2, 3, 8b, 9	4a, 6b	Other: catalyst or process regulator Processing aid, not otherwise listed	0 (UCN code P15500), 0 (Catalyst)	None reported
Use in environmental catalysts – Article Service Life	These descriptors cannot be reported	21	10a	Other: catalyst or process regulator	These descriptors cannot be reported	None reported
Use at industrial sites – Use resulting in inclusion into matrix	9, 10, 13, 15, 16, 17, 20, 24	2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 19, 22, 23, 24, 25, 26, 27a, 27b, 0 (Screen printing/dipping/Product printing/Cleaning)	5	- Conductive agents. - Process regulators, other than polymerization or vulcanization processes - Other: Medical devices - Other: Handling equipment - Corrosion inhibitors & anti-scaling agents -Other: Reaction accelerator. Increases the rate of a chemical reaction by lowering the energy - Other: Electronic device	7, 14, 15, 20, 0 (UCN 10a), 0 (Medical devices), 0 (Catalyst)	None reported
Use as an intermediate – Industrial[1,2,3,4]	9	3, 4, 5, 8a, 8b, 9, 15, 26, 0 (Cleaning operations)	6a	Intermediates	19, 21	These descriptors cannot be reported

Platinum

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Article service life of Pt metal and alloys – in devices used by consumers	These descriptors cannot be reported	These descriptors cannot be reported	10a, 11a	Other: temperature measurement	These descriptors cannot be reported	2, 7
Article service life of Pt metal and alloys– in jewellery and investment products - consumers,	These descriptors cannot be reported	These descriptors cannot be reported	10a, 11a	Other: Investment product Other: jewellery Other: No technical function, only a monetary deposit.	These descriptors cannot be reported	7, 0 (Platinum ingot 71 10 11)
Article service life – use by workers	These descriptors cannot be reported	14, 22, 23, 24, 25	11a, 12a	Other: electronic devices Other: alloy	These descriptors cannot be reported	2, 7

Karstedt Concentrate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of the substance as such)	These descriptors cannot be reported	1, 4, 8b, 9, 15	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Formulation of preparations	These descriptors cannot be reported	1, 2, 3, 4, 5, 8a, 8b, 9, 15, 0 (Cleaning)	2	Process regulators, other than polymerization or vulcanization Process regulators, used in vulcanization or polymerization processes	1, 9a, 19, 20, 32, 0 (Catalyst), 0 (Mould material for dental and ear implants)	None reported
Use of catalyst – industrial	5, 6a, 6b, 9, 10, 11, 12, 13, 17, 18, 19, 24	1, 2, 3, 4, 5, 8a, 8b, 9, 15	6d	Process regulators, used in vulcanization or polymerization processes	None reported	None reported

Karstedt Concentrate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Use of catalyst – professional	5, 10, 11, 12, 13, 17, 18, 19, 20	4,5, 8a, 8b, 9, 13, 14, 15, 21	8b, 8c, 8f	Process regulators, used in vulcanization or polymerization processes	1, 9a, 9b, 14, 15, 23, 26, 31, 32, 34	None reported
Article Service Life – Professional and Consumer use	These descriptors cannot be reported	These descriptors cannot be reported	10a, 11a, 12a	Process regulators, used in vulcanization or polymerization processes	These descriptors cannot be reported	None reported
Consumer use	None reported	These descriptors cannot be reported	8b, 8c, 8f	Process regulators, used in vulcanization or polymerization processes	1, 9a, 9b, 14, 15, 23, 26, 31, 32, 34, 39	These descriptors cannot be reported

Platinum Dinitrate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of the substance as such)	These descriptors cannot be reported	3, 4, 8a, 8b, 9, 15, 26, 0 (Cleaning)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Use as an intermediate – Industrial[1,2,3,4]	9, 10	1, 3, 4, 5, 8a, 8b, 9, 13, 15, 22, 26, 27a, 27b, 0 (Cleaning)	6a	Intermediates	19	These descriptors cannot be reported

Tetraammineplatinum dichloride

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of the substance as such)	These descriptors cannot be reported	1, 3, 8b, 9, 26	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
D/S use information required.						

Tetraammineplatinum dinitrate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of the substance as such)	These descriptors cannot be reported	3, 8b, 9, 15	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Formulation of preparations	These descriptors cannot be reported	1, 2, 3, 4, 5, 8a, 8b, 9, 0 (Cleaning operations)	2, 3	Process regulators, other than polymerization or vulcanization Intermediates	19	None reported
D/S use of catalyst missing				Process regulators, other than polymerization or vulcanization		
Use as intermediate – industrial[1,2,3,4]		3, 4, 5, 8a, 8b, 9, 13, 15, 27b, 0 (Cleaning with PPE	6a	Intermediates	19	These descriptors cannot be reported

Diammineplatinum nitrite

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of substance as such)	These descriptors cannot be reported	3, 4, 5, 8a, 8b, 9, 15, 0 (Cleaning operations)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Use as intermediate – industrial[1,2,3,4]	*See comments*	3, 4, 5, 8a, 8b, 9, 12, 15, 0 (Cleaning operations)	6a	Intermediate	19	These descriptors cannot be reported

Dipotassium tetrachloroplatinate

Use	SU	PROCs	ERCs	Technical function	PCs	ACs
Manufacture (of the substance as such)	These descriptors cannot be reported	3, 4, 8a, 8b, 9, 15, 26, 0 (Cleaning operations)	1	These descriptors cannot be reported	These descriptors cannot be reported	These descriptors cannot be reported
Use as intermediate – industrial[1,2,3,4]	*See comments*	3, 4, 8a, 8b, 26, 0 (Cleaning operations)	6a	Intermediates	19	These descriptors cannot be reported
Production of catalyst – industrial	9, 10	3, 4, 5, 8a, 8b, 9, 12, 15, 26, 27a, 27b, 0 (Cleaning operations)	5	Other: Reaction accelerator. Increases the rate of a chemical reaction by lowering the energy of activation.	20	None reported
D/S use of catalyst						

5.3. Draft CHESAR life cycle tree

Platinum Group Metals Meeting

Brussels

09 October 2014

EBRC Consulting
Hannover, Germany

Draft Chesar life cycle tree (Status 26-09-2014)

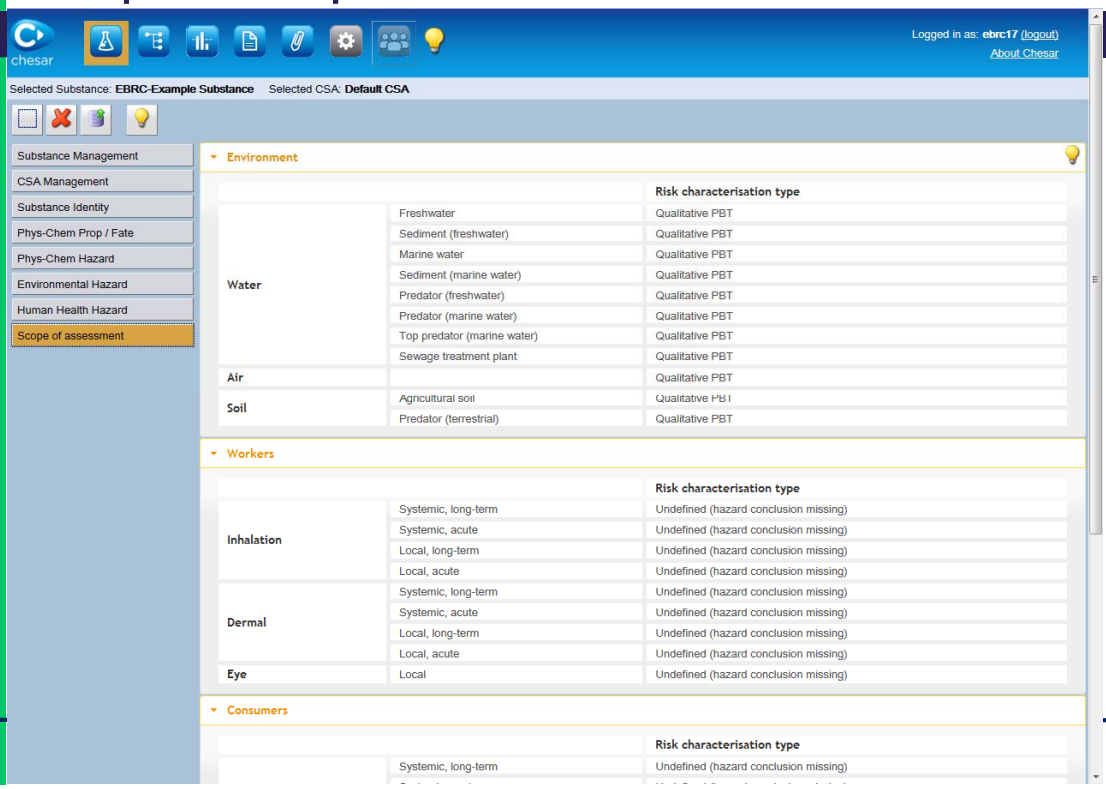
- Chesar (version 2.3):
  - ECHA's official "Chemical Safety Assessment and Reporting" tool
  - Automated completion of IUCLID Section 3.5
  - Automated completion of IUCLID Section 3.7
  - Possibility of repeated nomination of individual PROCs in single ES in Chesar and IUCLID (by means of the report generator tool)
- Draft list of grouped uses developed by wca
  - Clarifications required by members → final list after the meeting

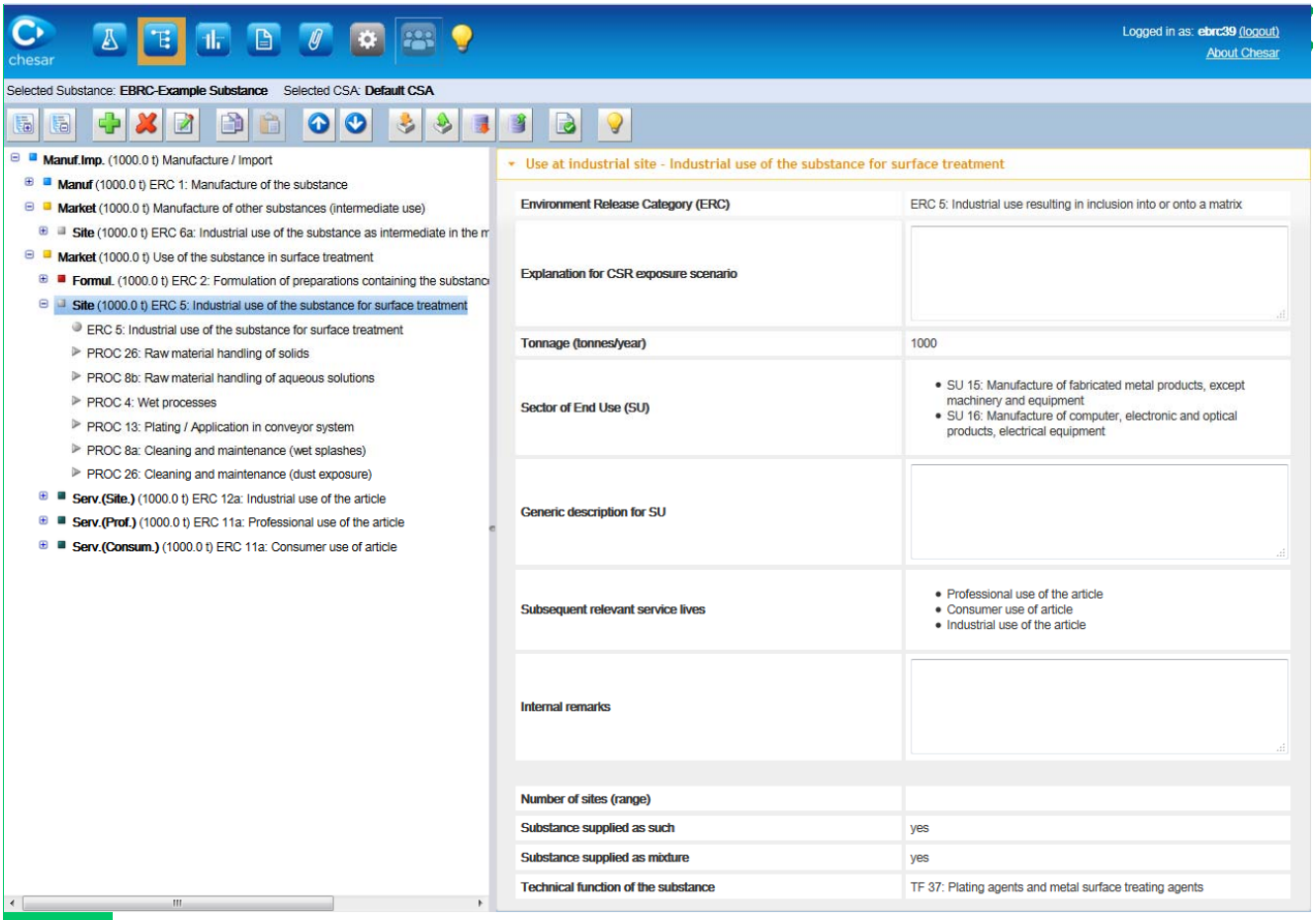
→ Example developed to demonstrate appearance, format, structure and possibilities

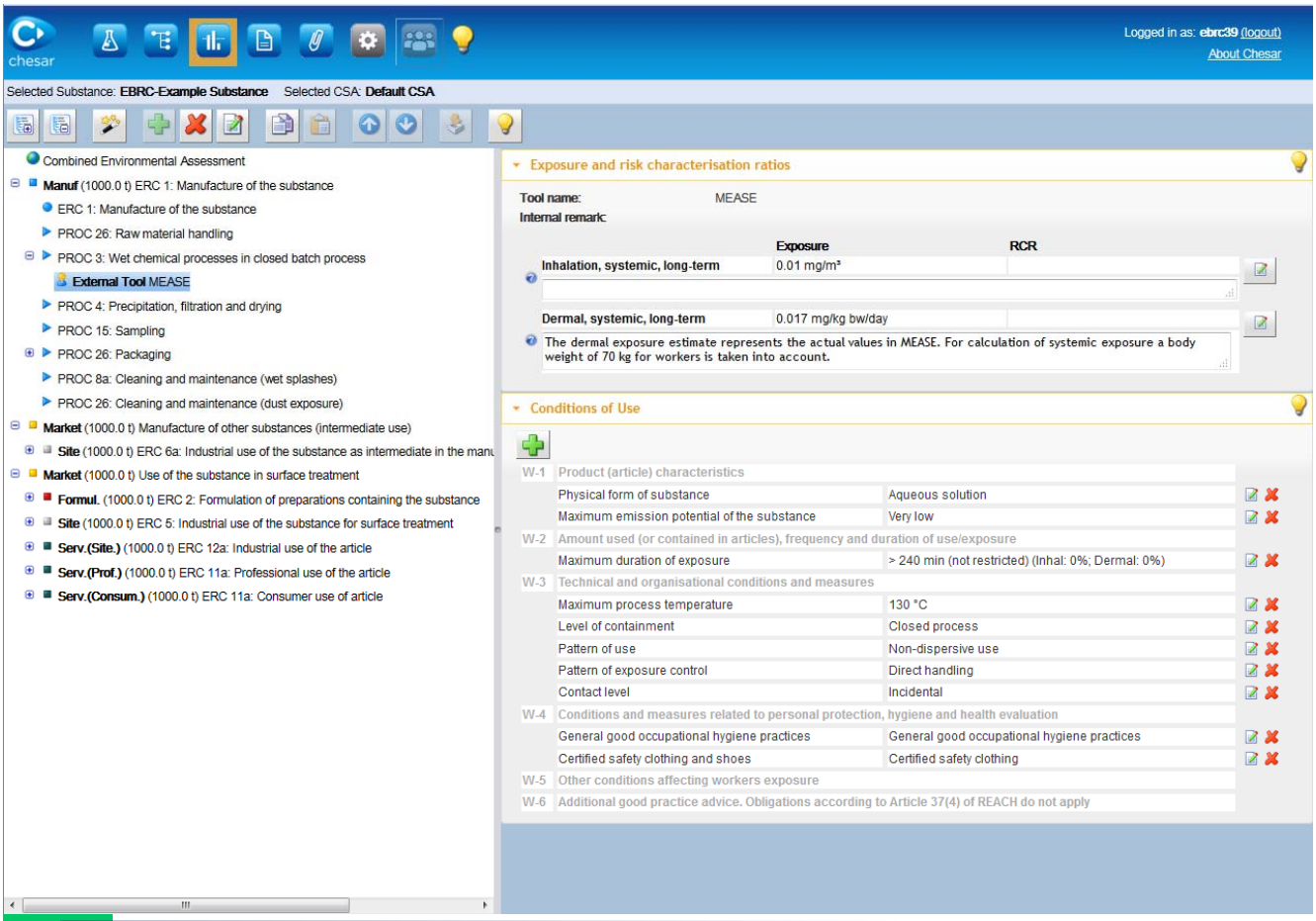
Overview of Example Life Cycle Tree

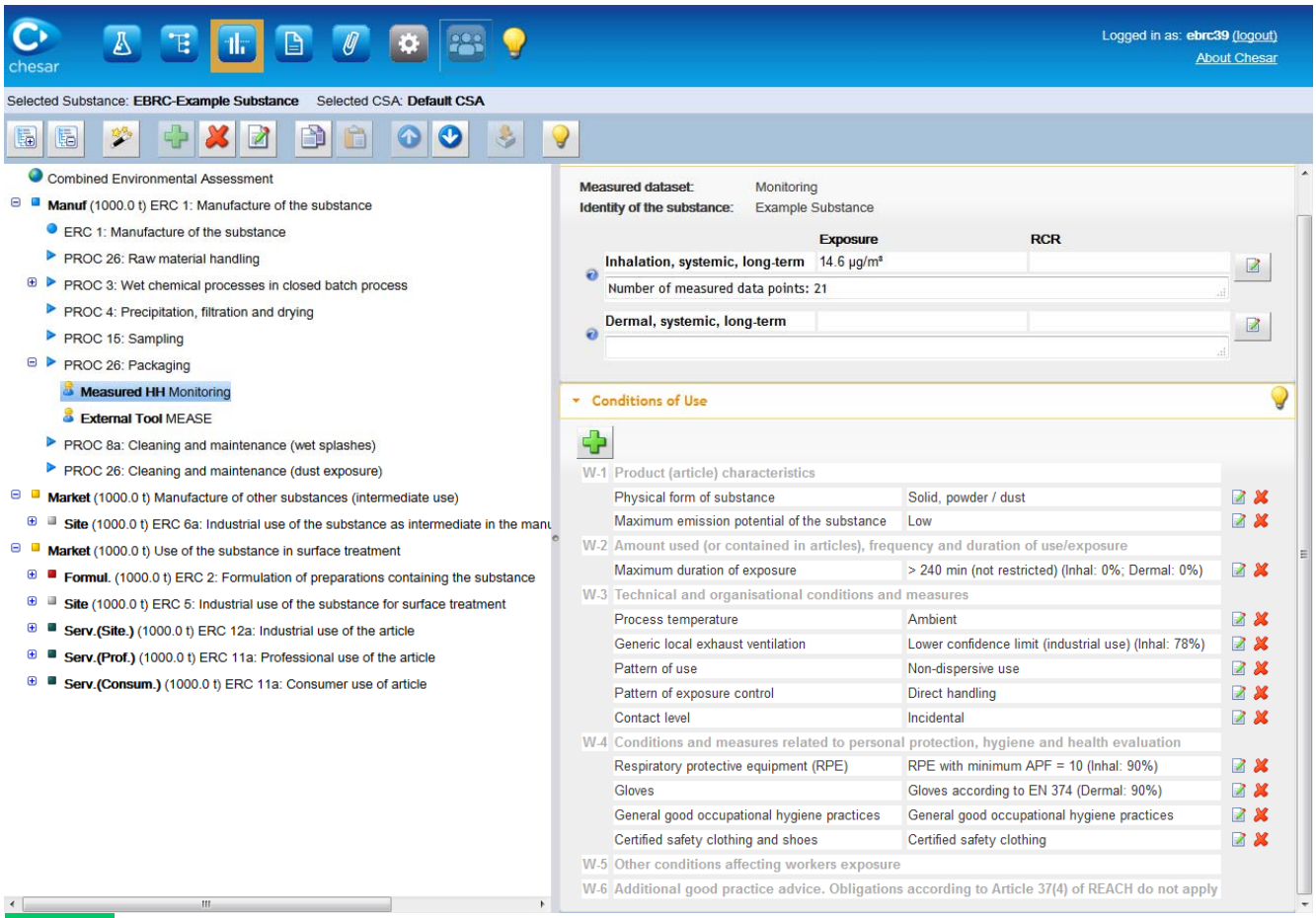
- Empty IUCLID file used
  - → no reference values (DNELs) in Chesar
  - → no scope of exposure assessment in Chesar
- Example life cycle tree (LCT) contains the following stages:
  - Manufacture (of the substance as such)
  - Industrial use: Use of the substance as intermediate in the manufacture of other substances
  - Use of the substance in surface treatment (= Market Sector)
    - Formulation of preparations containing the substance
    - Industrial use of the substance for surface treatment
    - Service life of surface-treated articles by workers (industrial and professional) and consumers

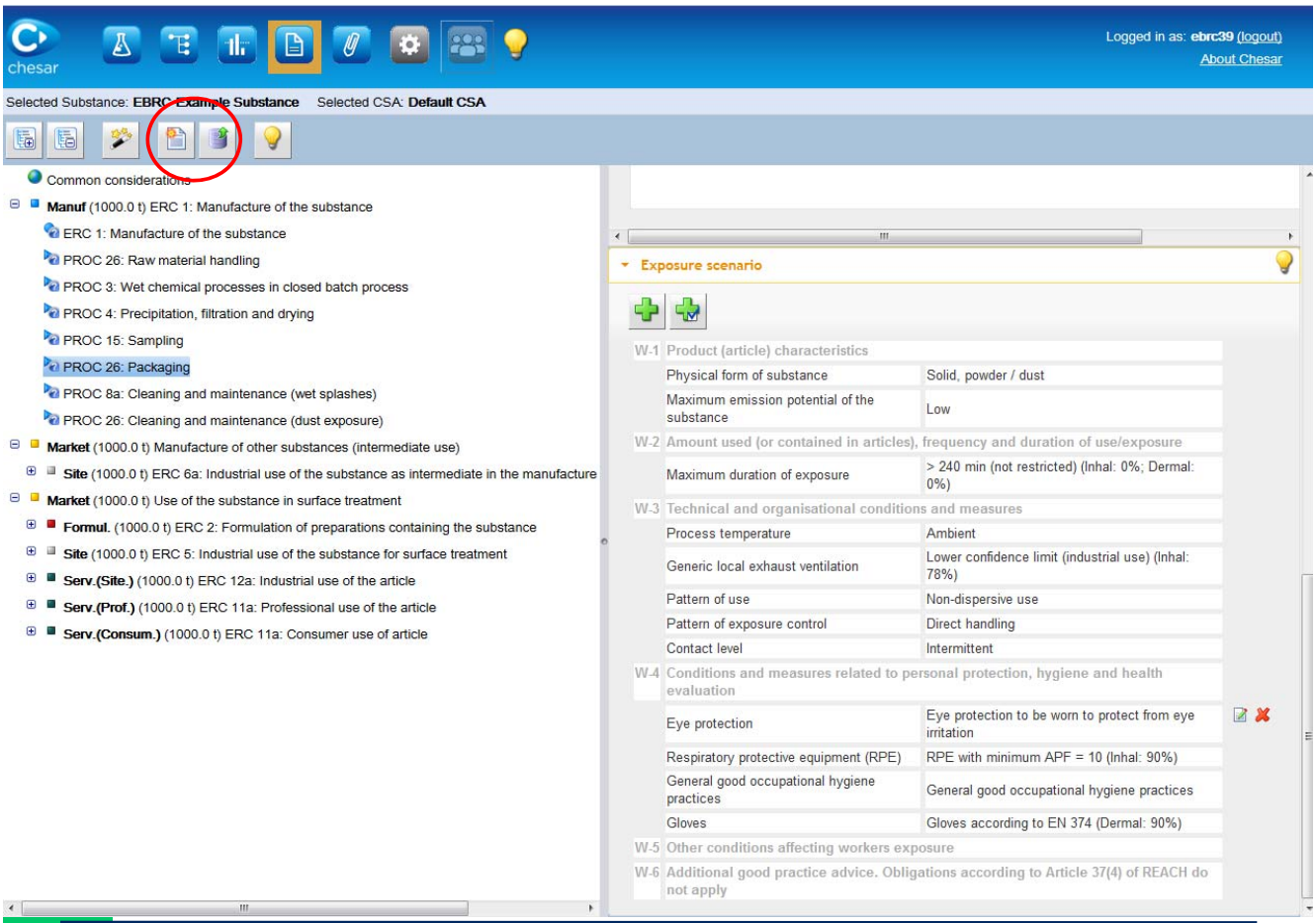
Scope of exposure assessment

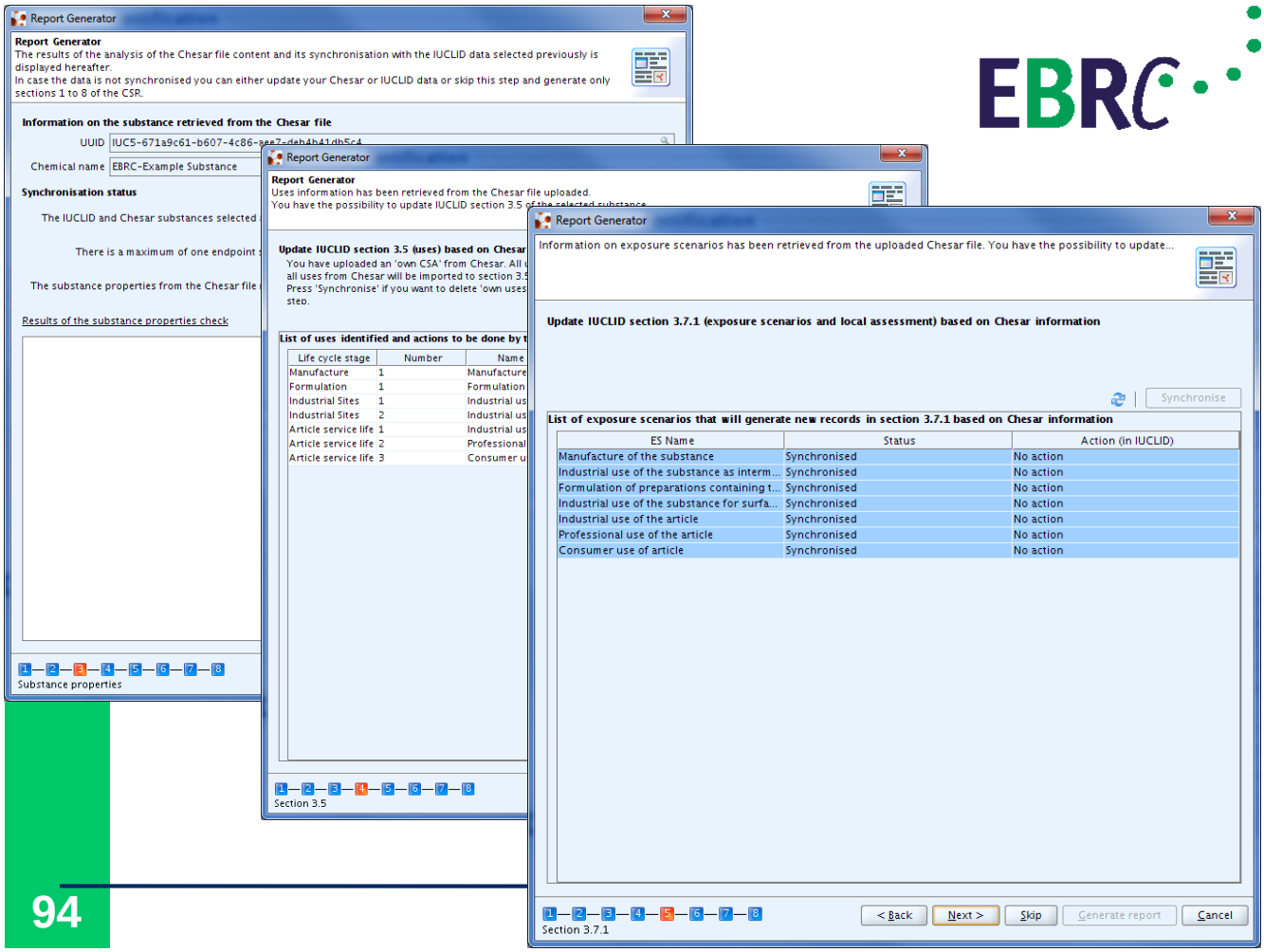





chesar
Logged in as: ebrc39 (logout)
About Chesar
Selected Substance: EBRC-Example Substance
Selected CSA: Default CSA
Combined Environmental Assessment
Manuf (1000.0 t) ERC 1: Manufacture of the substance
ERC 1: Manufacture of the substance
PROC 26: Raw material handling
PROC 3: Wet chemical processes in closed batch process
External Tool MEASE
PROC 4: Precipitation, filtration and drying
PROC 15: Sampling
PROC 26: Packaging
PROC 8a: Cleaning and maintenance (wet splashes)
PROC 26: Cleaning and maintenance (dust exposure)
Market (1000.0 t) Manufacture of other substances (intermediate use)
Site (1000.0 t) ERC 6a: Industrial use of the substance as intermediate in the manu
Market (1000.0 t) Use of the substance in surface treatment
Formul. (1000.0 t) ERC 2: Formulation of preparations containing the substance
Site (1000.0 t) ERC 5: Industrial use of the substance for surface treatment
Serv.(Site.) (1000.0 t) ERC 12a: Industrial use of the article
Serv.(Prof.) (1000.0 t) ERC 11a: Professional use of the article
Serv.(Consum.) (1000.0 t) ERC 11a: Consumer use of article
Exposure and risk characterisation ratios
Tool name: MEASE
Internal remark:
Exposure
RCR
Inhalation, systemic, long-term
0.01 mg/m³
Dermal, systemic, long-term
0.017 mg/kg bw/day
The dermal exposure estimate represents the actual values in MEASE. For calculation of systemic exposure a body weight of 70 kg for workers is taken into account.
Conditions of Use
W-1 Product (article) characteristics
Physical form of substance
Aqueous solution
Maximum emission potential of the substance
Very low
W-2 Amount used (or contained in articles), frequency and duration of use/exposure
Maximum duration of exposure
> 240 min (not restricted) (Inhal: 0%; Dermal: 0%)
W-3 Technical and organisational conditions and measures
Maximum process temperature
130 °C
Level of containment
Closed process
Pattern of use
Non-dispersive use
Pattern of exposure control
Direct handling
Contact level
Incidental
W-4 Conditions and measures related to personal protection, hygiene and health evaluation
General good occupational hygiene practices
General good occupational hygiene practices
Certified safety clothing and shoes
Certified safety clothing
W-5 Other conditions affecting workers exposure
W-6 Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply


chesar
Logged in as: ebrc39 (logout)
About Chesar
Selected Substance: EBRC-Example Substance
Selected CSA: Default CSA
Combined Environmental Assessment
Manuf (1000.0 t) ERC 1: Manufacture of the substance
ERC 1: Manufacture of the substance
PROC 26: Raw material handling
PROC 3: Wet chemical processes in closed batch process
PROC 4: Precipitation, filtration and drying
PROC 15: Sampling
PROC 26: Packaging
Measured HH Monitoring
External Tool MEASE
PROC 8a: Cleaning and maintenance (wet splashes)
PROC 26: Cleaning and maintenance (dust exposure)
Market (1000.0 t) Manufacture of other substances (intermediate use)
Site (1000.0 t) ERC 6a: Industrial use of the substance as intermediate in the manu
Market (1000.0 t) Use of the substance in surface treatment
Formul. (1000.0 t) ERC 2: Formulation of preparations containing the substance
Site (1000.0 t) ERC 5: Industrial use of the substance for surface treatment
Serv.(Site.) (1000.0 t) ERC 12a: Industrial use of the article
Serv.(Prof.) (1000.0 t) ERC 11a: Professional use of the article
Serv.(Consum.) (1000.0 t) ERC 11a: Consumer use of article
Measured dataset: Monitoring
Identity of the substance: Example Substance
Exposure
RCR
Inhalation, systemic, long-term
14.6 µg/m³
Number of measured data points: 21
Dermal, systemic, long-term
Conditions of Use
W-1 Product (article) characteristics
Physical form of substance
Solid, powder / dust
Maximum emission potential of the substance
Low
W-2 Amount used (or contained in articles), frequency and duration of use/exposure
Maximum duration of exposure
> 240 min (not restricted) (Inhal: 0%; Dermal: 0%)
W-3 Technical and organisational conditions and measures
Process temperature
Ambient
Generic local exhaust ventilation
Lower confidence limit (industrial use) (Inhal: 78%)
Pattern of use
Non-dispersive use
Pattern of exposure control
Direct handling
Contact level
Incidental
W-4 Conditions and measures related to personal protection, hygiene and health evaluation
Respiratory protective equipment (RPE)
RPE with minimum APF = 10 (Inhal: 90%)
Gloves
Gloves according to EN 374 (Dermal: 90%)
General good occupational hygiene practices
General good occupational hygiene practices
Certified safety clothing and shoes
Certified safety clothing
W-5 Other conditions affecting workers exposure
W-6 Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply


chesar
Logged in as: ebrc39 (logout)
About Chesar
Selected Substance: EBRC-Example Substance
Selected CSA: Default CSA
Common considerations
Manuf (1000.0 t) ERC 1: Manufacture of the substance
ERC 1: Manufacture of the substance
PROC 26: Raw material handling
PROC 3: Wet chemical processes in closed batch process
PROC 4: Precipitation, filtration and drying
PROC 15: Sampling
PROC 26: Packaging
PROC 8a: Cleaning and maintenance (wet splashes)
PROC 26: Cleaning and maintenance (dust exposure)
Market (1000.0 t) Manufacture of other substances (intermediate use)
Site (1000.0 t) ERC 6a: Industrial use of the substance as intermediate in the manufacture
Market (1000.0 t) Use of the substance in surface treatment
Formul. (1000.0 t) ERC 2: Formulation of preparations containing the substance
Site (1000.0 t) ERC 5: Industrial use of the substance for surface treatment
Serv.(Site.) (1000.0 t) ERC 12a: Industrial use of the article
Serv.(Prof.) (1000.0 t) ERC 11a: Professional use of the article
Serv.(Consum.) (1000.0 t) ERC 11a: Consumer use of article
Exposure scenario
W-1 Product (article) characteristics
Physical form of substance
Solid, powder / dust
Maximum emission potential of the substance
Low
W-2 Amount used (or contained in articles), frequency and duration of use/exposure
Maximum duration of exposure
> 240 min (not restricted) (Inhal: 0%; Dermal: 0%)
W-3 Technical and organisational conditions and measures
Process temperature
Ambient
Generic local exhaust ventilation
Lower confidence limit (industrial use) (Inhal: 78%)
Pattern of use
Non-dispersive use
Pattern of exposure control
Direct handling
Contact level
Intermittent
W-4 Conditions and measures related to personal protection, hygiene and health evaluation
Eye protection
Eye protection to be worn to protect from eye irritation
Respiratory protective equipment (RPE)
RPE with minimum APF = 10 (Inhal: 90%)
General good occupational hygiene practices
General good occupational hygiene practices
Gloves
Gloves according to EN 374 (Dermal: 90%)
W-5 Other conditions affecting workers exposure
W-6 Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply


Report Generator
Report Generator
The results of the analysis of the Chesar file content and its synchronisation with the IUCLID data selected previously is displayed hereafter.
In case the data is not synchronised you can either update your Chesar or IUCLID data or skip this step and generate only sections 1 to 8 of the CSR.
Information on the substance retrieved from the Chesar file
UUID
Chemical name
EBRC-Example Substance
Synchronisation status
Results of the substance properties check
Substance properties
Uses information has been retrieved from the Chesar file uploaded.
Update IUCLID section 3.5 (uses) based on Chesar
List of uses identified and actions to be done by t
Life cycle stage
Number
Name
Manufacture
Formulation
Industrial Sites
Article service life
Section 3.5
Information on exposure scenarios has been retrieved from the uploaded Chesar file. You have the possibility to update...
Update IUCLID section 3.7.1 (exposure scenarios and local assessment) based on Chesar information
Synchronise
List of exposure scenarios that will generate new records in section 3.7.1 based on Chesar information
ES Name
Status
Action (in IUCLID)
Manufacture of the substance
Synchronised
No action
Industrial use of the substance as interm...
Formulation of preparations containing t...
Industrial use of the substance for surfa...
Industrial use of the article
Professional use of the article
Consumer use of article
Section 3.7.1
< Back
Next >
Skip
Generate report
Cancel

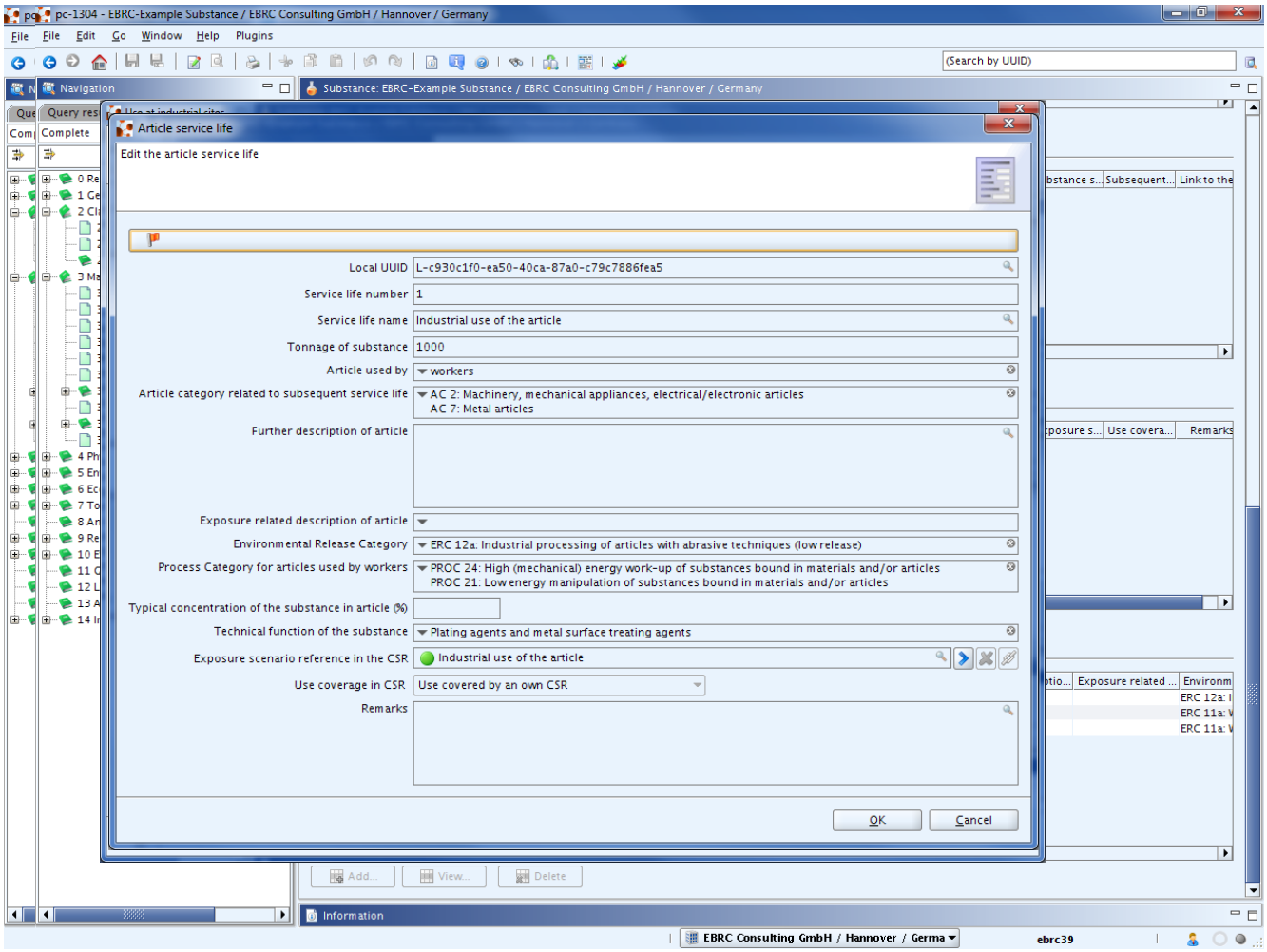


Table 1. Manufacture

Identifiers	Use descriptors	Other information
M-1: Manuf the substanc		

2.2. Identified uses

Table 1. Formulation

Identifiers	Use descriptors	Other information
F-1: Formulation of preparations containing the substance	**Environmental release category (ERC):** ERC 2: Formulation of preparations	Tonnage of substance: 1000.0 Substance supplied to that use:

Table 1. Uses at industrial sites

Identifiers	Use descriptors	Other information
IW-1: Industrial use of the substance as intermediate in the manufacture of other substances	**Environmental release category (ERC):** ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) **Process category (PROC):** PR(aml PR(whe PR(exp PR((cha con PR(aml **Produ** PC **Sector** SU (inc SU **Techn formu** Inte	Tonnage of substance: 1000.0 Substance supplied to that use: As such Subsequent service life relevant

Table 1. Article service life

Identifiers	Use descriptors	Other information
SL-1: Industrial use of the article	**Article category related to subsequent service life (AC):** AC 2: Machinery, mechanical appliances, electrical/electronic articles AC 7: Metal articles **Environmental release category (ERC):** ERC 12a: Industrial processing of articles with abrasive techniques (low release) **Process category (PROC):** PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles PROC 21: Low energy manipulation of substances bound in materials and/or articles **Technical function of the substance during formulation:** Plating agents and metal surface treating agents	Article used by: workers Tonnage of substance: 1000.0

CSR Section 9

Table 1. Overview of exposure scenarios and contributing scenarios

Identifiers	Market Sector	Titles of exposure scenarios and the related contributing scenarios	Tonnage (tonnes per year)
ES1 - M1		Manufacture - Manufacture of the substance - Manufacture of the substance (ERC 1) - Raw material handling (PROC 26) - Wet chemical processes in closed batch process (PROC 3) - Precipitation, filtration and drying (PROC 4) - Sampling (PROC 15) - Packaging (PROC 26) - Cleaning and maintenance (wet splashes) (PROC 8a) - Cleaning and maintenance (dust exposure) (PROC 26)	1000.0
ES2 - IW1	PC 19	Use at industrial site - Industrial use of the substance as intermediate in the manufacture of other substances - Industrial use of the substance as intermediate in the manufacture of other substances (ERC 6a) - Raw material handling (PROC 26) - Wet chemical reaction (PROC 4) - Calcination (PROC 1) - Cleaning and maintenance (wet splashes) (PROC 8a) - Cleaning and maintenance (dust exposure) (PROC 26)	1000.0
ES3 - F1	PC 14	Formulation - Formulation of preparations containing the substance - Formulation of preparations containing the substance (ERC 2) - Raw material handling (PROC 26) - Formulation step (PROC 5) - Filling of solutions (PROC 9) - Cleaning and maintenance (wet splashes) (PROC 8a) - Cleaning and maintenance (dust exposure) (PROC 26)	1000.0
ES4 - IW2	PC 14	Use at industrial site - Industrial use of the substance for surface treatment - Industrial use of the substance for surface treatment (ERC 5) - Raw material handling of solids (PROC 26) - Raw material handling of aqueous solutions (PROC 8b) - Wet processes (PROC 4) - Plating / Application in conveyor system (PROC 13) - Cleaning and maintenance (wet splashes) (PROC 8a) - Cleaning and maintenance (dust exposure) (PROC 26)	1000.0
ES5 - SL-IW1	PC 14	Service life (worker at industrial site) - Industrial use of the article - Industrial use of the article (ERC 12a) - Mechanical processing of plated articles (PROC 24) - Handling of plated articles (PROC 21)	1000.0
ES6 - SL-PW1	PC 14	Service life (professional worker) - Professional use of the article - Professional use of the article (ERC 11a) - Mechanical processing of plated articles (PROC 24) - Handling of plated articles (PROC 21)	1000.0
ES7 - SL-C1	PC 14	Service life (consumers) - Consumer use of article - Consumer use of article (ERC 11a) - Handling and transfer of articles, high abrasive tasks (AC 2) - Handling and transfer of articles, high abrasive tasks (AC 7)	1000.0
Manufacture: M-#, Formulation: F-#, Industrial end use at site: IW-#, Professional end use: PW-#, Consumer end use: C-#, Service life (by workers in industrial site): SL-IW-#, Service life (by professional workers): SL-PW-#, Service life (by consumers): SL-C-#.)			

EBRC

CSR Assessment 1/3

9.1. Exposure scenario 1: Manufacture - Manufacture of the substance

Environment contributing scenario(s):	
Manufacture of the substance	ERC 1
Worker contributing scenario(s):	
Raw material handling	PROC 26
Wet chemical processes in closed batch process	PROC 3
Precipitation, filtration and drying	PROC 4
Sampling	PROC 15
Packaging	PROC 26
Cleaning and maintenance (wet splashes)	PROC 8a
Cleaning and maintenance (dust exposure)	PROC 26

CSR Assessment 2/3

9.1.3. Worker contributing scenario 2: Wet chemical processes in closed batch process (PROC 3)

9.1.3.1. Conditions of use

Task(s) covered with this contributing scenario: Chemical reactions, mixing.

	Method
Product (article) characteristics	
• Physical form of substance: Aqueous solution	External Tool (MEASE)
• Maximum emission potential of the substance: Very low (Only the highest emission potential (EP) is reported. Lower EPs (e.g. if materials of lower dustiness are being handled in parallel) are thus automatically covered in this assessment.)	External Tool (MEASE)
Amount used (or contained in articles), frequency and duration of use/exposure	
• Maximum duration of exposure: > 240 min (not restricted) [Effectiveness Inhal: 0%; Dermal: 0%]	External Tool (MEASE)
Technical and organisational conditions and measures	
• Maximum process temperature: 130 °C	External Tool (MEASE)
• Level of containment: Closed process	External Tool (MEASE)
• Pattern of use: Non-dispersive use	External Tool (MEASE)
• Pattern of exposure control: Direct handling	External Tool (MEASE)
• Contact level: Incidental	External Tool (MEASE)

CSR Assessment 3/3

9.1.3.2. Exposure and risks for workers

The exposure concentrations and risk characterisation ratios (RCR) are reported in the following table.

Table 1. Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.01 mg/m³** (External Tool (MEASE))	>>>**CAUTION:** Risk not controlled (based on qualitative risk characterisation) <<<
Inhalation, systemic, acute		>>>**CAUTION:** Risk not controlled (based on qualitative risk characterisation) <<<
Inhalation, local, long-term		>>>**CAUTION:** Risk not controlled (based on qualitative risk characterisation) <<<
Inhalation, local, acute		>>>**CAUTION:** Risk not controlled (based on qualitative risk characterisation) <<<
Dermal, systemic, long-term	**0.017 mg/kg bw/day** (External Tool (MEASE))	>>>**CAUTION:** Risk not controlled (based on qualitative risk characterisation) <<<

Scope of assessment

9.0.2.3. Workers

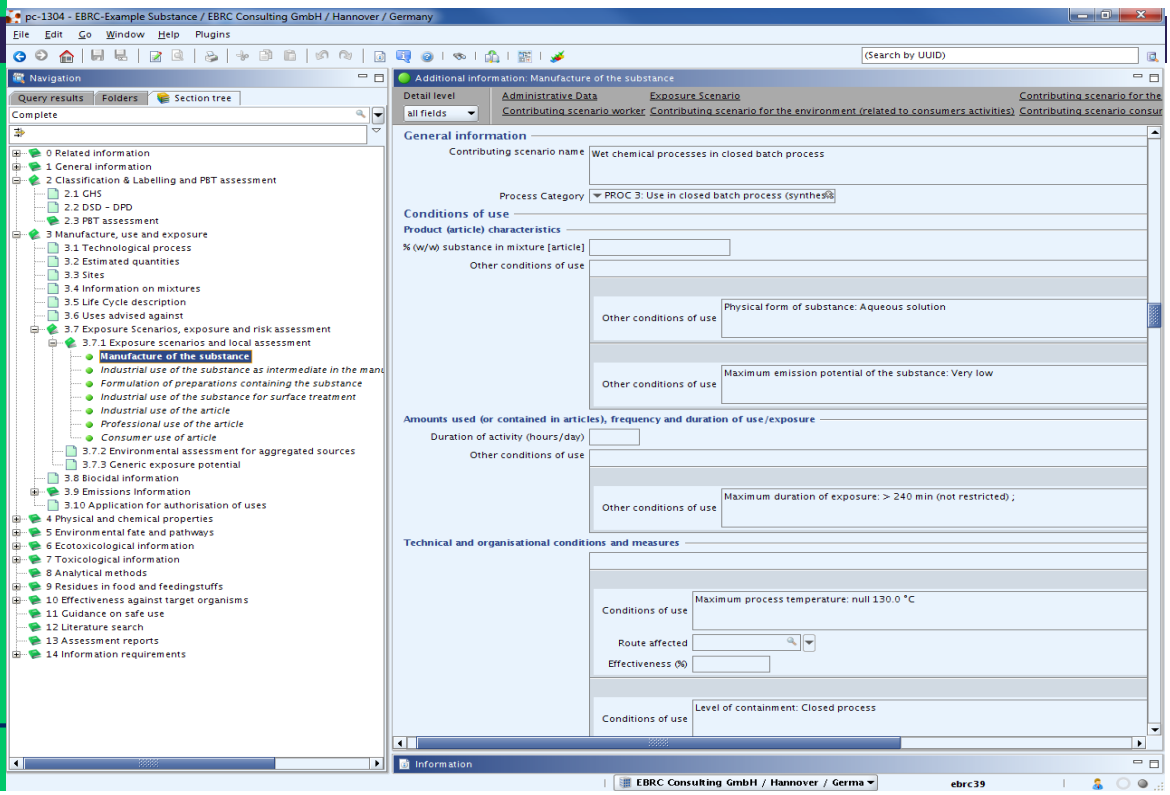
Scope and type of assessment

The scope of exposure assessment and type of risk characterisation required for workers are described in the following table based on the hazard conclusions presented in section 5.11.

Table 1. Type of risk characterisation required for workers

Route	Type of effect	Type of risk characterisation	Hazard conclusion (see section 5.11)
Inhalation	Systemic, long-term	Undefined (hazard conclusion missing) **CAUTION: No hazard conclusion or no DN(M)EL value provided in IUCLID section 7**	
	Systemic, acute	Undefined (hazard conclusion missing) **CAUTION: No hazard conclusion or no DN(M)EL value provided in IUCLID section 7**	
	Local, long-term	Undefined (hazard conclusion missing) **CAUTION: No hazard conclusion or no DN(M)EL value provided in IUCLID section 7**	
	Local, acute	Undefined (hazard conclusion missing) **CAUTION: No hazard conclusion or no DN(M)EL value provided in IUCLID section 7**	

IUCLID Section 3.7



PGM Environmental Exposure Modelling & Risk Assessment

Ed Stutt, Iain Wilson & Becky Marks

EMPLOYEE OWNERSHIP

Content

- Site-specific monitoring programme
  - » Background and update
- STP monitoring programme
- PGM Environmental exposure questionnaires
  - » Summary of initial responses for Pt, Rh & Ru substances

Site Specific PGM Monitoring Programme

- Site specific risk assessments where RCR>1 indicates an unacceptable risk to the environment
- Where data + modelling indicate that aquatic and sediment RCRs >1 there is a requirement to undertake monitoring to demonstrate safe production/use
- Monitoring may also be advisable where RCR = 0.5 – 1,
  - » e.g. to remove doubt from uncertainties in exposure assessment and likely requirement to undertake assessment of mixtures

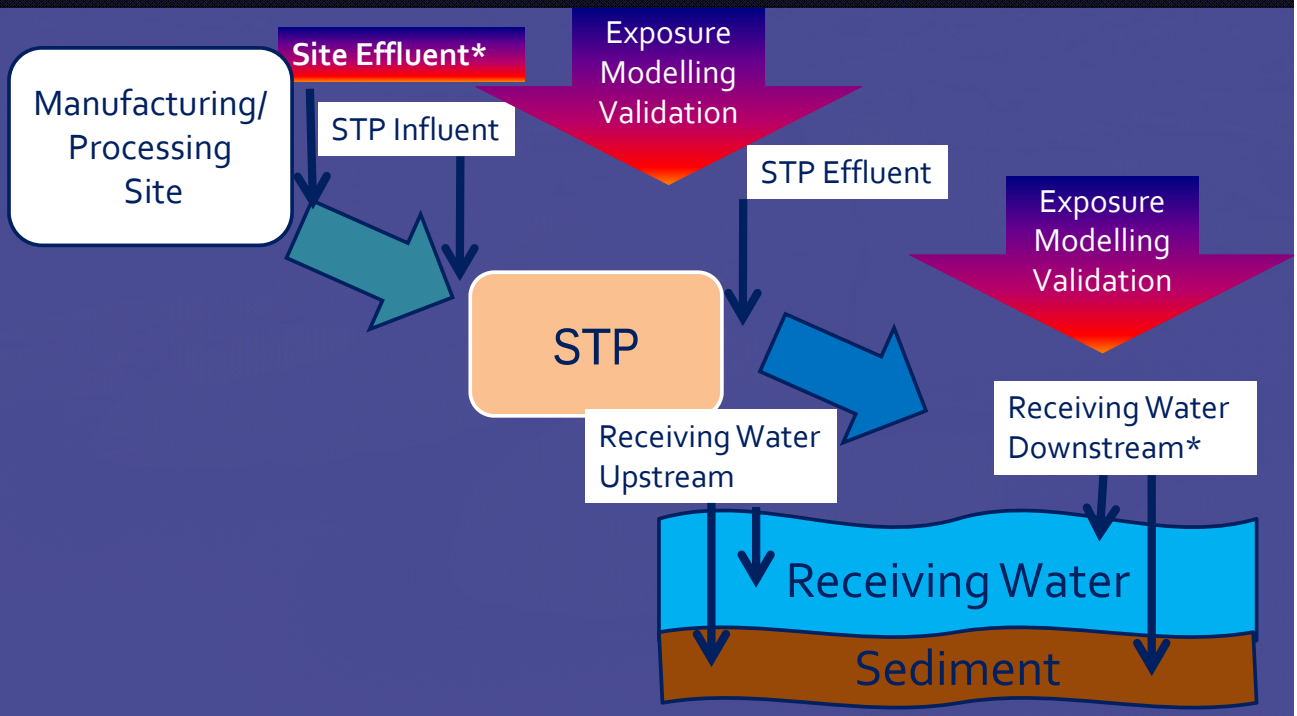
Site Specific PGM Monitoring Programme

- Current aquatic exposure estimates are based on:
  - » the quantities of Pd substances produced and emissions data from the site (known)..... +
  - » Numerous **assumptions** on environmental fate and behaviour of Pd (and for some sites, dilution in receiving water body)
- Exposure can be refined on the basis of monitoring for:
  - » Removal rate for Pd and other PGMs in STP (sector initiative)
  - » Effluent discharge level, concentrations in receiving water body and sediment downstream of discharge (site specific)
- Site-specific risk assessments for Pd have been updated with revised (draft!) PNECs

Updated site-specific risk assessment for Pd

Site Ref	Receiving water body	Release factor to water	RCR STP	RCR Receiving water body	RCR Receiving water body sediment	Release factor to air	RCR Local Air	RCR Local soil (no sludge)
		g/T				g/T		
Site A	Freshwater via STP	5.8	3.00×10^{-7}	0.026	0.36	1.1	1.1×10^{-5}	0.08
Site B	Freshwater via STP	109.5	4.41×10^{-4}	**22**	**109**	300	1.5×10^{-2}	0.08
Site C	Freshwater via STP	0.9	2.03×10^{-7}	0.026	0.36	300	4.6×10^{-3}	0.08
Site D	Freshwater via STP	62.5	2.71×10^{-5}	0.16	**1.0**	300	7.3×10^{-3}	0.08
Site E	Freshwater	25.3	NR	0.042	0.44	61.0	1.7×10^{-3}	0.08
Site F	Freshwater via STP	0.2	5.17×10^{-9}	0.025	0.35	158	1.4×10^{-4}	0.08
Site G	Marine water	68.2	NR	**10**	**163**	300	4.1×10^{-3}	0.08
Site H	Freshwater via STP	68.2	3.39×10^{-7}	0.026	0.36	300	5.6×10^{-3}	0.08
Site I	**No emissions**							
Site J	Freshwater via STP	357.1	1.13×10^{-4}	0.60	**3.1**	300	9.7×10^{-3}	0.08
Site K	Freshwater via STP	833.3	9.04×10^{-4}	**4.6**	**23**	300	3.3×10^{-3}	0.08
Site L	Freshwater via STP	78.0	1.63×10^{-6}	0.033	0.39	300	5.6×10^{-4}	0.08
Site M	Freshwater via STP	68.2	9.25×10^{-5}	0.50	**2.6**	300	5.6×10^{-4}	0.08
Site N	Marine water via STP	180.0	5.55×10^{-4}	**2.5**	**39**	300	5.6×10^{-3}	0.08
Site O	Freshwater via STP	459	1.9×10^{-5}	0.055	0.499	300	5.0×10^{-4}	0.08

Required Monitoring Points*



Site Specific PGM Monitoring Programme

- Additional information can be provided from measurement of:
  - » **Site effluent concentration (on the basis of lower LoD)**
  - » Concentrations in receiving water body and sediment upstream of discharge (ambient or regional background)
  - » Supporting parameters such as pH, dissolved organic carbon (DOC), calcium (or hardness) and conductivity
- Site monitoring recommended for prolonged time period & regular review of generated data
- Sediment monitoring programme desirable across all sites

Current Status of PGM Monitoring Programme

- Analysis of effluent and receiving water samples (as required)
  - » Sampling performed by companies & analysis by ESG lab
- ESG being used due to the low LoDs; for example <10 ng Pd/L
- Samples analysed for total Pd and dissolved Pd & PGMs (as required) and phys chem properties
  - » Other PGMs & precious metals include Au, Ag, Rh, Ru and Pt.
- Programme to continue for 6 to 12 months based on review of site-specific results and SSRA

Current Status of PGM Monitoring Programme

- Several companies currently taking part and sending samples to ESG;
  - » Other companies have not yet engaged, or are performing their own monitoring
  - » Initial focus is on measurement of PGM concentrations in effluent although some companies are monitoring both effluent and receiving water
  - » All billing for this programme is based on the services used & first stage of billing will commence in October
- Companies currently not taking part in the monitoring programme can still be included
  - » Wca will supply the required sampling materials and sample delivery information

Sewage Treatment Plant (STP) Monitoring Programme

- No quantification for removal rate of any PGMs in sewage treatment plants (STPs)
- STP removal rate in current Pd exposure assessment estimated from information on partitioning to suspended particulate matter
  - » controlled by partitioning to organic carbon
- Significant uncertainty regarding this assumption
- Removal rate can only be quantified by measuring PGMs in sewage influent and effluent

Monitoring PGM Removal in STPs

- A monitoring programme is being set up at STPs that are receiving discharges from plants processing effluent containing PGMs
- Conditions (and removal rates) can vary between STPs and over time

➢ 3 sampling regimes at 3 STPs

➢ Ongoing negotiations to set this up

➢ Use average removal rate in exposure assessment

Environmental exposure questionnaire for PGMs

- Aim is to facilitate compilation of sector-wide data for preparation of Generic Exposure Scenario(s) (GES)
  - » GES based on values calculated from compiled dataset and are therefore anonymous
- Provision of initial dataset for site-specific risk assessment (SSA)
  - » If Tier 1 assessments indicate a pass (i.e. RCR <<1 then this will be all that is required)
  - » Additional data may be required for higher tier modelling; this will only requested if Tier 1 indicates a failure

Response to the questionnaire

- Limited and variable number of responses compared to palladium (although indication that there are more to come)
  - » 8 completed questionnaires for Pt
  - » 6 completed questionnaires for Rh
  - » 3 completed questionnaires for Ru
- Majority provided estimates of emissions to water (measured and <LoD) although little data on emissions to air

Response to the questionnaire

- Similarly to process for Pd, questionnaire responses will be compiled and representative values (90P or 50P taken to inform GES for joint submission)
- Early indication is that input to Pt exposure assessment will be similar to that for Pd
  - » Higher tonnage but slightly lower EF for aquatic environment
- Risk characterisation not possible until we have test data for ecotox and values for partitioning parameters (to be selected following literature review)

Follow-up to the questionnaire

- Tonnage data
  - ➢ Need net tonnage processed at each site (Pd, Pt, Rh & Ru)
  - ➢ Require input tonnage for each PGM (i.e. PGM as **metal equivalent** in raw materials)
- Consideration of 'net PGM tonnage' (as input) for each metal is required for calculation of emission factors to inform the GES
  - ➢ EF = annual emission / input tonnage per annum

Tonnage data

PGM ore or refinable (**x Tonne/annum 'used')***

↓

PGM compound 1 (x T/a; intermediate)

↓

PGM compound 2 (y T/a to market) → (z T/a; intermediate)

↓

PGM compound 3 (z T/a to market)

**** Net PGM tonnage used (as raw material) will be input to environmental risk assessment***

Calculation of GES using input tonnage

- EF = $\frac{\text{annual emission of PGM}}{\text{input tonnage of PGM per annum}}$
- Calculation of sufficiently conservative EF for each metal that is then applicable to all substances
- Alternative method is generation of an EF for each PGM substance by comparing total emissions to the metal equivalent tonnage of *each individual substance* (MORE conservative)
- This approach has been recommended by the regulators looking at the environmental assessment of Ni

Environmental exposure questionnaire for PGMs

- More data & questionnaire responses please
- The larger the dataset the more representative it is of the sector

7. Occupational exposure PGMs

Platinum Group Metals Meeting

Brussels

09 October 2014

EBRC Consulting
Hannover, Germany

Occupational exposure questionnaire - Pt

- Development of questionnaire for Pt and Pt substances:
  - List of hazardous substances M/I ≥10 t/a provided by the secretariat:
    - → Pt (substance is not hazardous to HH but to be included in exp. assessment)
    - → plus 6 Pt substances:
      - Hexachloroplatinic acid
      - Dipotassium hexachloroplatinate
      - Platinum dinitrate
      - Platinum, 1,3-diethenyl-1,1,3,3-tetramethyldisiloxane complexes / Karstedt concentrate (to be included in survey as hazard assessment not started yet)
      - Diammonium hexachloroplatinate
      - Dihydrogen hexahydroxyplatinate
    - → Tetraammineplatinum dinitrate not included (available test results indicate that substance is not hazardous to HH)

Occ. exp. questionnaire – Status 1/3 (26-09-2014)

- Very few questions received regarding questionnaire
- 6 companies provided questionnaires with completed substance-specific sheets:
  - 6 for platinum
  - 2 for hexachloroplatinic acid
  - 1 for dipotassium hexachloroplatinate
  - 1 for platinum dinitrate
  - 1 for platinum, 1,3-diethenyl-1,1,3,3-tetramethyldisiloxane complexes / Karstedt concentrate
  - 3 for diammonium hexachloroplatinate
  - 1 for dihydrogen hexahydroxyplatinate

Occ. exp. questionnaire – Status 2/3 (26-09-2014)

- 3 companies already indicated availability of inhalation monitoring data

→ Submission form for inhalation monitoring data to be provided by EBRC tailored to individual company needs

- More responses to follow End September/Early October
- Additional monitoring data available from IPA, however:
  - Detailed information on e.g. workplaces not available
  - Sampling duration often not given
  - Measured fraction not yet confirmed
  - Data set not complete, additional data announced

  → Waiting for additional information and completion of data set

Occ. exp. questionnaire – Status 3/3 (26-09-2014)

- Nominated ACs:
  - AC2 - Direct handling, dusty materials, ambient temperature
  - AC3 - Handling of non/very low dusty materials, ambient temp.
  - AC4 - Wet chemistry - not-closed processes
  - AC6 - Not-closed processes at elevated temperature
  - AC7 - Closed process at elevated temperature
  - AC8 - Mechanical operations - not-closed processes
  - AC9 - No likelihood of exposure (furnace operations excluded)
  - AC10 - Non-routine maintenance
- First screening:
  - Level of detail already quite good
  - Clarification on minor issues required (emails to be sent out)

Occ. exp. questionnaire - Feedback

- Feedback from companies:
  - Structure of questionnaire improved compared to previous version
  - Circulation over summer put pressure on companies, sending of questionnaires after summer would have been preferred
- Feedback from EBRC:
  - Questionnaires seem to be completed very thoroughly
  - Provided information in most cases sufficient for the time being
  - Waiting for additional questionnaires before sending out:
    - emails for clarification
    - submission forms for inhalation monitoring data

Additional questions from EBRC

- Additional information required for substances that are:
  - SCC intermediates?
  - Non-SCC intermediates?
  - Manufactured/Imported <10 t/y by a company?
- Information on dustiness of Pt substances
- Decisions to be taken on:
  - Following scope of exposure assessment as required by ECHA?
  - Use of Chesar for reporting of occupational exposure assessment?

Thank you for your attention!

8. AOB, next meetings/calls and closing remarks

8. Any other business

- Water solubility paper accepted for publication

8.1. RMO for chloroplatinates (*M. Raffray*)

- Resp. sensitisers likely to be on Candidate List in 2016
  - Chloroplatinates are respiratory sensitizers
  - Chloroplatinates already on Annex VI to CLP = can be prioritized even if no Reach dossier submitted yet
- Risk Management Options
  - Authorization
  - Restriction
  - OELs
- Preparedness
  - Develop our own RMOs
  - Proposal Michel Vanderstraeten: 10,5 days @ 1000 euros/d = 10 500 Euros
  - Any objections?

8.2. Budget update (*K. Rothenbacher*)

	Budget	Real	Diff.
2014 - Total	817.650 €	469.235 €	348.415 €
Phase 1: Lit. search, data gap analysis and recs. (e.g. C&L update)	15.750 €	13.587 €	2.163 €
Phase 2: In-depth data gap analysis and integrated testing strategy	10.500 €	0 €	10.500 €
Phase 3: Experimental studies (testing prog. inc. cost of samples)	552.000 €	391.196 €	160.804 €
Phase 4: Generation of Chemical Safety Reports	215.250 €	46.930 €	168.320 €
Phase 5: Generation of IUCLID 5 Files and Registration Dossiers	21.000 €	15.767 €	5.233 €
IUCLID 5 Hosting System	3.150 €	1.755 €	1.395 €

8.3. Project plan update (*K. Rothenbacher*)

Need to develop fast-track plan AHCPd registration

- Timing: asap
- Will be developed in coming weeks

Time planning other PGMs

- On schedule (except Ru compounds)
- Gantt charts next slides

7.2. Timing planning other PGMs

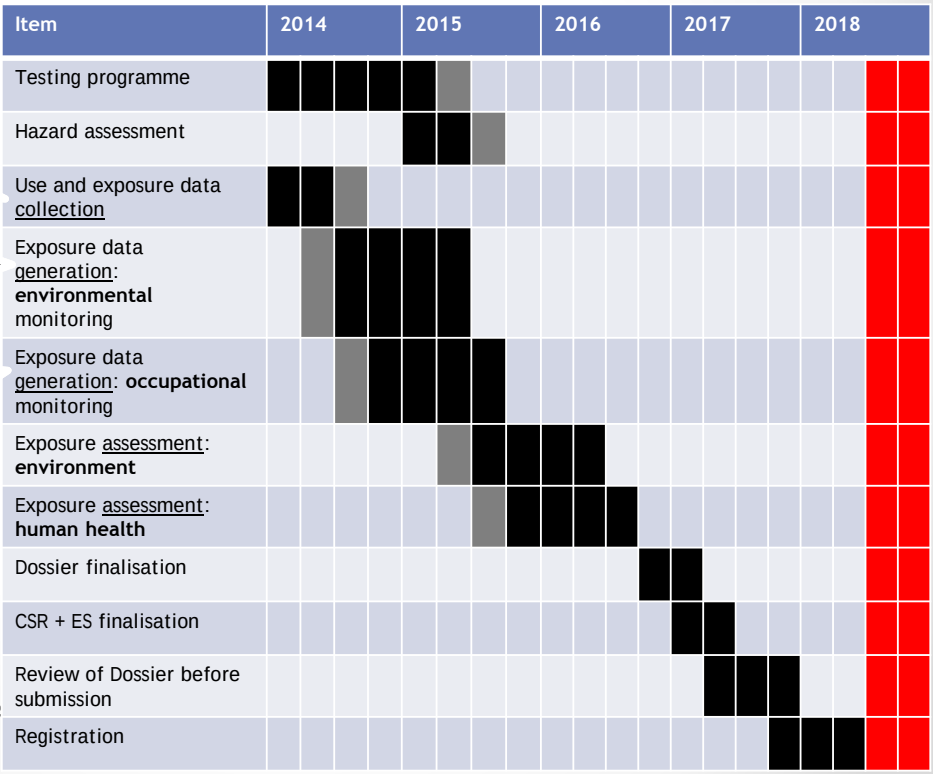
Presented at Nov. 2013 PGM WG mtg.

Assumed to take place in parallel (use and exposure) and for al PGM

Need to decide whether to proceed with Pd first, and then other PGM (once PNECs known), or all PGM in parallel (using lowest LoD for all)

After IPA's Pt exposure dataset has been checked, determine for which PGM monitoring is needed

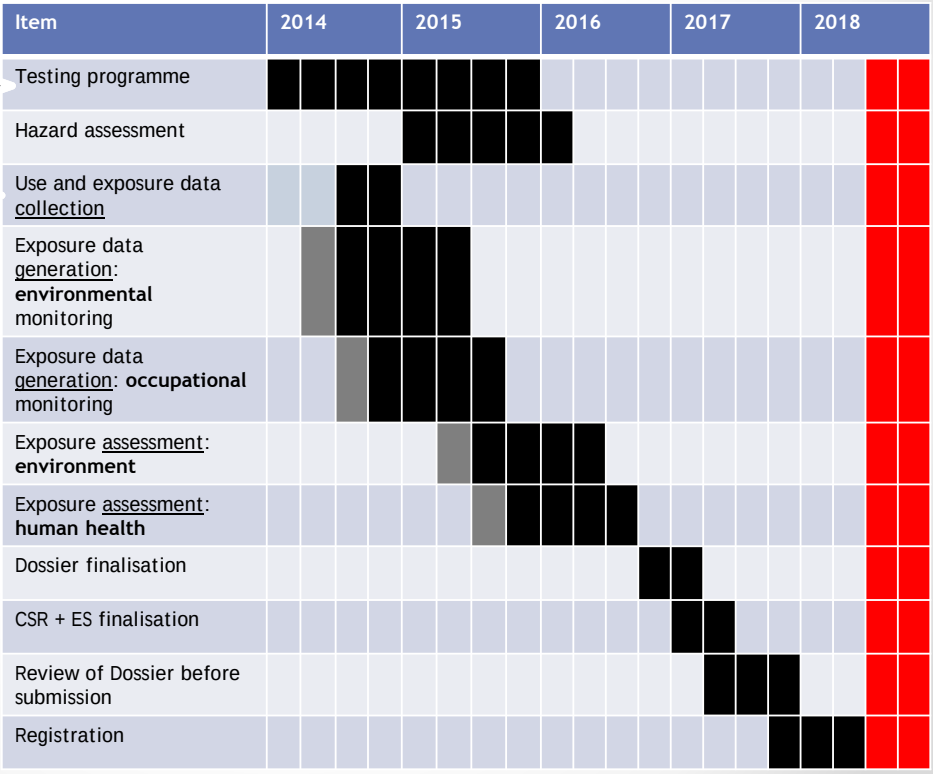
Other PGM besides Pt and Pd
=
2 Rh and 2 Ru compounds



8.3. Updated timing planning

Testing programme on track (exc. Ru)

Data collection delayed by 6 months



Thank you!