

**Un caso d'autorizzazione del
triossido di cromo nei trattamenti
superficiali
anticorrosivi**

ENEA workshop

Roma, 11-13 October 2017

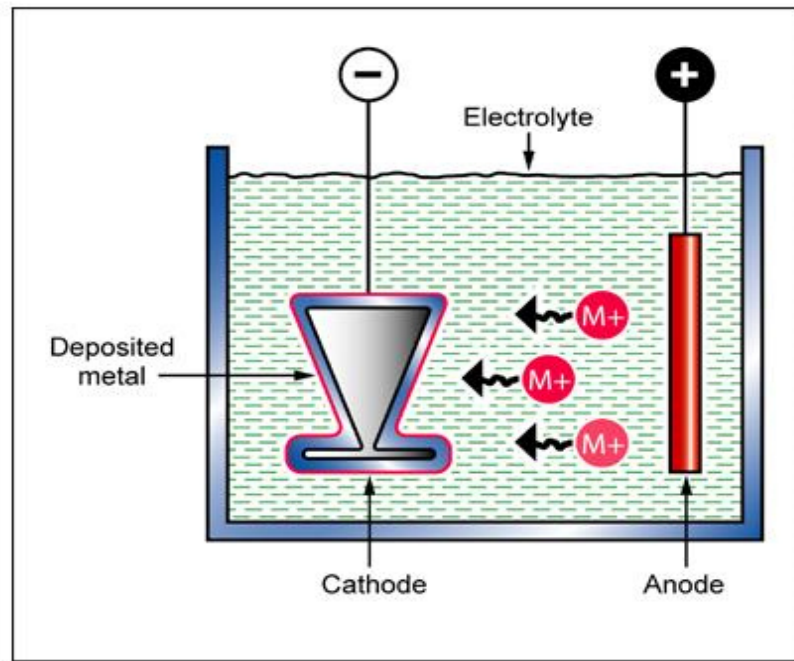
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Importance of Cr VI in AfA

News alert [Sunset date for Chromium VI compounds approaches - what should downstream users do?](#)

ECHA has published on its website (<https://echa.europa.eu>) a Question & Answer to clarify the legal obligations for downstream users of Chromium VI compounds after the sunset date which is 21 September 2017.

Main use



PROCESS



Electroplating

Background of the application (1)

- Name: Chromium trioxide
- EC Number 215-607-8
- CAS Number 1333-82-0
- Entry Nr in Annex: XIV16
- Use name: Functional chrome plating of articles for automotive applications
- Broad information on use applied for (conditions of use and function)

Background of the application (2)

- Broad information on use applied for (Use descriptor system):
- Section 9 and 10 of the CSR (non confidential):
- Summary table of representative RMMs and OCs (non confidential)
- Analysis of Alternatives (non confidential report)
- Substitution Plan (non confidential summary)
- Socio-Economic Analysis (non confidential report)
- Joint Analysis of Alternatives and Socio-Economic Analysis (non confidential report)

REACH 60. 4.

- ... an authorisation may only be granted if it is shown that socio-economic benefits outweigh the risk to human health or the environment arising from the use of the substance and if there are no suitable alternative substances or technologies. This decision shall be taken after consideration of the opinions of the Committee for Risk Assessment and the Committee for Socio- economic.

AoA (1)

- Functional chrome plating of engine parts using chromium trioxide offers unique technical benefits in comparison to potential alternatives which include: excellent tribological properties: wear and abrasion resistance combined with hardness leading to longevity.

Assessment of TF

Technical key functionalities of an engine part:

- **Wear resistance Corrosion resistance Hardness**
Coefficient of friction Process conditions
Additional criterion: Microstructure

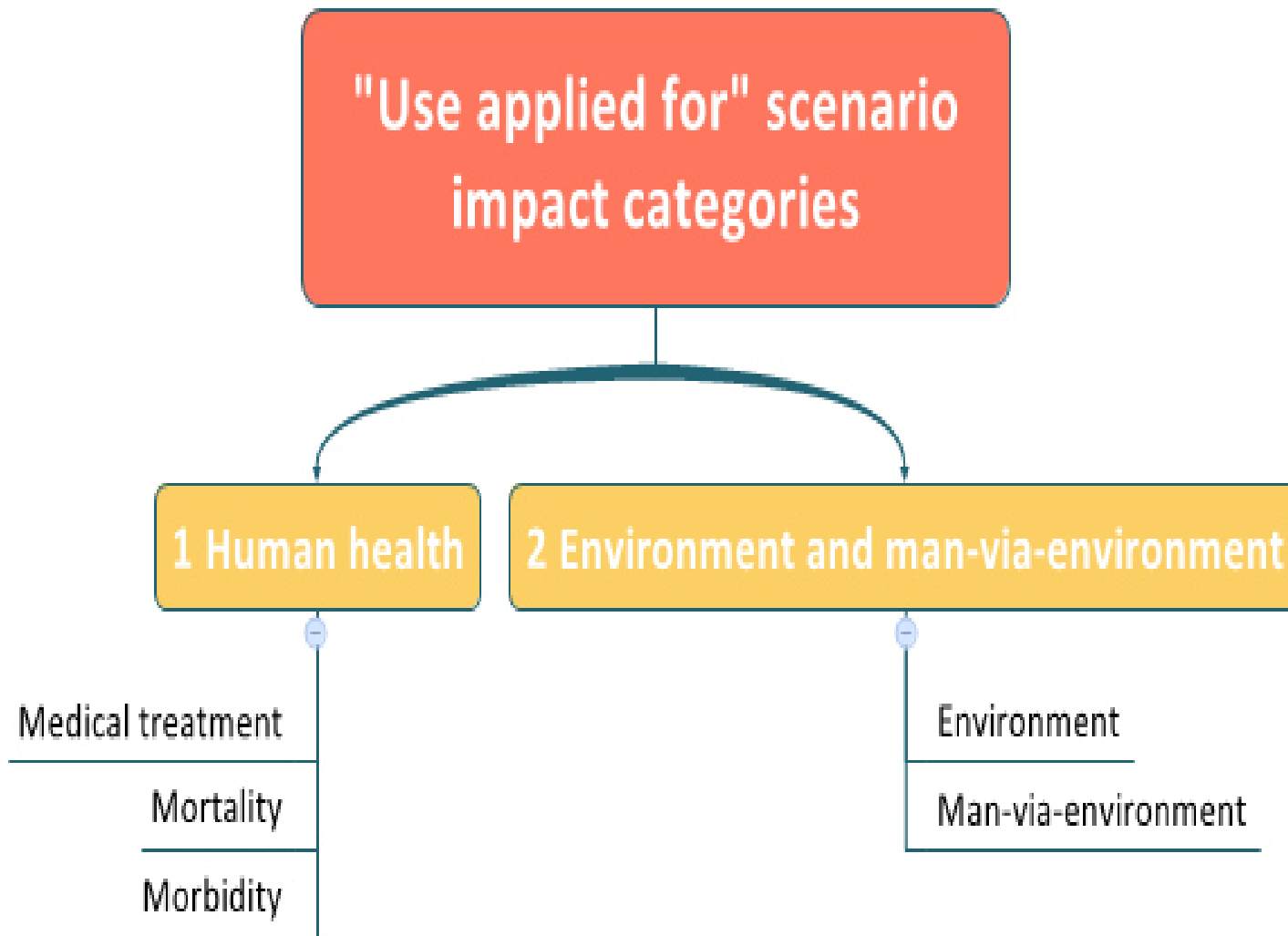
Most promising alternatives :

- **Nitrocarburization)**
- **Physical Vapour Deposition (PVD)**
- **Chemical Vapour Deposition (CVD)**
- **Trivalent Hard Chrome Plating**

Assessment of EF

- The Applicant have to describe its market situation and what their competitors are likely do in the future
- Cost difference between the use of CrO_3 and alternative
- No suitable alternative

Applied-for-use scenario (1)



Applied-for-use scenario (2)

	Excess cancer risk	Number of exposed people	Estimated statistical cancer cases
Workers, 40y exposure			
Directly exposed workers – Combination of WCS	Applicant assessment $1,40 \cdot 10^{-5}$	26	Applicant assessment $3,64 \cdot 10^{-4}$
	Reassessment $7.50 \cdot 10^{-5}$		Reassessment $1.95 \cdot 10^{-3}$
General population exposed via environnement, 70y exposure			
Local via air	$1.09 \cdot 10^{-6}$	10 000	$1.09 \cdot 10^{-2}$
Regional via water	$3.30 \cdot 10^{-10}$	10 000	$3.30 \cdot 10^{-6}$

Applied-for-use scenario (3)

Value of a lung cancer case (lower and upper bounds) amount to **MEUR 3 and 4** with

- the discount rate (considered to be **4% a year as recommended by ECHA in the SEA guidance (ECHA, 2011)**)
- the latency period (assumed to be **10 years for lung cancer as done in the ECHA review from 2016 (ECHA, 2016)**)
- being the fatality rate of the cancer type (assumed to be **82.8 % for lung cancer**)

Health impacts for workers (€) $10^4 - 10^5$, in general **population $10^5 - 10^6$** in function of

- technology, quantity,
- number of plants, exposed workers,
- RP

Non-use scenario (1)



Non-use scenario (2)

a) Indicated response to denied authorisation

- - Use of the best alternative as described;
- - Complete or partial shutdown of site(s);
- -Relocation or going out of business;

b) Economic impacts of non-use included in the assessment

- - Loss in applicant's/upstream/downstream profits (or producer surplus);
- - Loss in applicant's/upstream/downstream value added foregone;
- - Loss in applicant's/upstream/downstream revenues.

c) Social impacts of non-use included in the assessment

- - Unemployment costs;
- - Loss in consumer surplus;
- - Other social impacts quantified (e.g., distributional impacts).

Non-use scenario (3)

**Economic impacts for non-use (€) $10^{+6} - 10^{+7}$
in function of**

- turnover, quantity,
- investment,
- RP

**Social impacts for non-use (€) $10^{+5} - 10^{+6}$
in function of**

- unemployment costs
- number of workers

Review period

Are any of the criteria for a long RP met:

- The investment cycle is demonstrably long (meaning >7 years);
- Costs of alternatives are very high and unlikely to change over the RP;
- It is unlikely that alternatives become available within a normal RP;
- Possible alternatives require legislative measures;
- Remaining risks are demonstrably low and benefits are high.

Questions?

Thanks

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