

REACH / CLP information at industrial sites
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REACH data in environmental management: a pilot case in metal plating sites

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REACH data for environmental management

Pilot case: use of Safety Data Sheets in environmental management at a metal plating site

- Motivation for the pilot case
- Outline of the pilot case
- Findings of the pilot case
- Conclusions

Pilot case: Motivation

Environmental management of chemicals:

- Challenge of assessing emission from point sources
- Comprehensive emission data available only for a few substances
- Emission data often only on summation parameters (e.g. for water emissions: chemical oxygen demand)

Pilot case: Motivation

Environmental management of chemicals:

- Absence of knowledge on substances present at (and emitted from) industrial sites
 - Lack of information on concentrations of substances in the environment
 - Unavailability of limit values / environmental quality standards EQS for evaluation of the environmental state of play
- ⇒ Data available due to REACH and CLP can fill the information gap

Pilot case: Motivation

Important data / information from REACH and CLP:

- Substance toxicity
 - Environmental fate
 - Risk evaluation data
 - Chemical safety assessment (→ safe use, PNEC)
 - Agreed assessment methodology (ECHA Guidance)
- ⇒ Data available in (extended) Safety Data Sheets and complemented by ECHA's public database(s)

Pilot case: Motivation

Environmental management needs under the IED:

- Preventive measures against pollution (no significant pollution is caused)
- Application of best available techniques (BAT)
- Reduction / recycling / appropriate (= least polluting) disposal of waste
- Prevention of accidents and limitation of their impacts
- Remediation of sites once activities are stopped
- Maximised energy efficiency

Pilot case: Outline

Outline of the pilot case 2014 (*):

- Two industrial sites (metal plating, pulp/paper)
- Metal plating site handling 231 chemicals covered by a Safety Data Sheet and in total 224 different substances
- Assessment of deficiencies in the Sections of the 231 SDSs (1=not sufficiently filled, 2=with minimal information, 3=with extended information)
- Availability of extended SDS (for substances / for mixtures)

*) See final report for the pilot case with a focus on water management (in german language):

http://www.bmlfuw.gv.at/greentec/chemikalien/reach/REACH_Wasser.html

Pilot case: Outline

Outline of the pilot case 2014:

- Assessment of full coverage of any use on site by the exposure scenarios of the extended SDSs
- Emission estimates for substances based on data in the SDSs
- Assessment of the environmental releases (emissions)

Pilot case: Findings

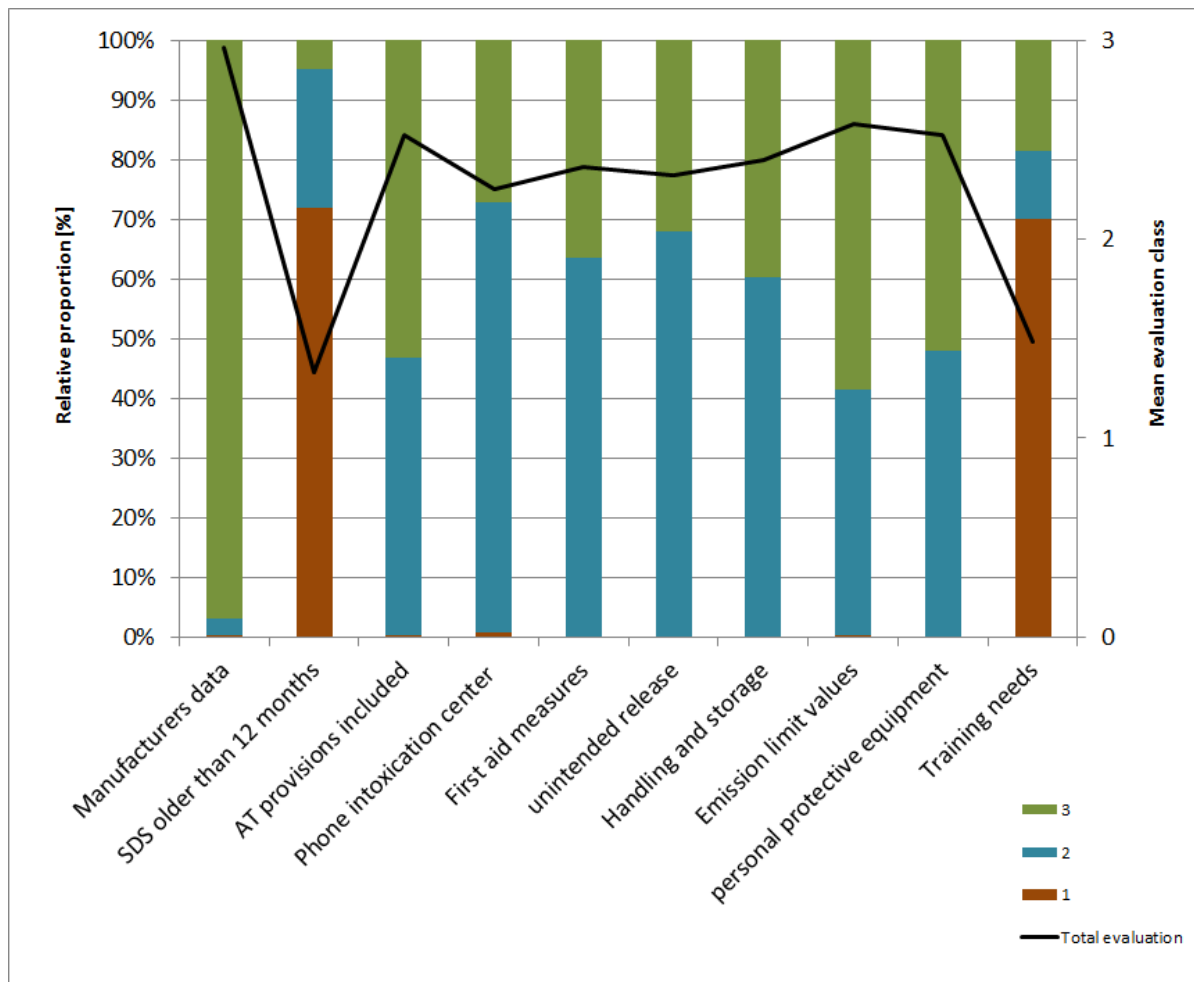
Deficiencies in the 231 Safety Data Sheets:

- Timeliness of SDS in 2014: 72% SDS older than 2012
- In general good ratings like “SDS provides extended information” are mostly below 50%, especially for some Sections of the SDS relevant for IED
- Sections with good ratings are
 - Limitation of emissions
 - Personal Protective Equipment

⇒ Overall, the information in SDS can be regarded as mainly fit for purpose

Pilot case: Findings

Deficiencies in the 231 Safety Data Sheets:



Pilot case: Findings

Deficiencies in the 231 Safety Data Sheets:

- In the specific context of the metal plating site the standard phrases in SDSs are often unclear (insufficient differentiation)
- Contradicting instructions are frequent in SDSs
- Absent actuality of SDSs puts doubts on up-to-date safe use information in line with REACH registrations (improvements in the supply chain to be expected soon)
- No assessment of correctness or quality of SDSs has been undertaken

Pilot case: Findings

Availability of extended SDSs:

- Only 5% of SDSs are extended SDSs (for substances and mixtures)
 - Considering registered tonnages, availability rates for extended SDSs at downstream users need to be higher
 - Risk management measures are unspecific and often contradictory
 - Environmental assessment is often missing (e.g. for substances with no CLP environmental hazard classification)
- ⇒ Downstream users need to actively ask suppliers for extended SDSs

Pilot case: Findings

Assessment for coverage of use on site by the exposure scenarios of extended SDSs:

A recommended 4 step approach:

1. Compilation of information on the own use(s) on-site for a substance (substance in mixture)
2. Screening of exposure scenario titles in the extended SDS for potentially relevant exposure scenarios
3. Assessment of sectors of use descriptors (SU)
4. Assessment of remaining use descriptors

⇒ All chemicals with extended SDS available match the safe use conditions of the SDS (based on operational conditions and risk management measures applied on site)

Pilot case: Findings (Water)

Emission estimates based on data in SDSs:

- A complete substance inventory is a pre-requisite:
 - substance identity
 - classification
 - annual tonnages
 - information on components (of mixtures):
 - identity and classification of hazardous substances
 - concentration (mass fraction)
 - environmental release categories (ERC)
- Calculation of discharges based on Cefic release factors for ERCs and removal/retention efficiencies for the RMM applied (Cefic Guidance SpERCs, October 2012 *)
- Calculation of emission concentrations from discharges and from waste water quantities covered by the permits

*) <http://www.cefic.org/Documents/IndustrySupport/REACH-Implementation/Guidanceand-Tools/SPERCs-Specific-Environmental-Release-Classes.pdf>

Pilot case: Findings (Water)

Emission estimates based on data in SDSs:

- Metal plating operator did not yet record annual tonnages for substances → no calculation of emission estimates was possible
- ERCs are only rough approximates (additional factors might be size of installation, substance properties, refined description of efficiency of measures), rather use SpERCs
- Overall calculated removal efficiency in waste water is typically 99% which is in line with the waste water treatment scheme on-site (ion exchange, biological treatment, filtration)

Pilot case: Findings (Water)

Assessment of the environmental emissions:

- Available PNECs (fresh water) are used for impact assessment of calculated emissions
- PNECs are used as criteria for a “first assessment” together with a comparison of recommended and applied operational conditions and risk management measures
- Calculated emissions are always lower than the reported PNEC, the only exemption is hydrogen peroxide as an artefact exists as an (assessment situation from the case pulp/paper)
 - ⇒ PNECs (fresh water) are not yet readily available in (extended) SDSs for all substances

CONCLUSIONS

- Compilation of a substance inventory for an industrial site is a mandatory prerequisite
- Extended Safety Data Sheets are not yet available at industrial sites (actuality problem of SDSs !)
- Determination (calculation) of emissions from data in SDSs is possible, but requires detailed data not yet available at industrial sites (ERCs in extended SDSs)
- For an impact assessment of emissions PNECs (fresh water) are not yet available in the SDSs being in use at industrial sites

CONCLUSIONS

- It is to be expected that availability of extended SDS at industrial sites should improve soon (for substances and mixtures)
- Information on risk management measures in SDS is helpful for reduction of emissions, for identification of best available techniques and for design of a monitoring
- Monitoring data on-site can be used to validate and refine safe use information in the SDSs

**REACH data in environmental
management:
a pilot case in metal plating sites**

Thank you for your attention !