Ecotox classification for substances and mixtures under CLP

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1. Classification drivers

2. The Environmental Classification system: *from DSD to 2nd ATP of the CLP*

3. Labelling requirements

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1. Classification drivers

1.Classification drivers for the environment under DSD, GHS & CLP

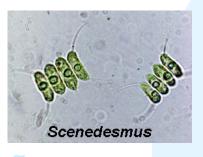**Classification drivers** for ecotoxicity:

    ü *Toxicity* : short or chronic toxicity

    ü Absence of "*degradability*" to define long-term effects

    ü Potential for "*bioaccumulation*"

1.Classification drivers for the environment under DSD and CLP

How is this measured ?

ü Toxicity :

    û *Lowest EC50* for reference species representing the different throfic levels (fish, daphnia and algae)

    û *Lowest NOEC* for reference species

ü Absence of degradation :

    û ½ Lifetime of Bio- or photodegradation

    û And for metals "*Removal from the watercolumn*"

ü Bioaccumulation :

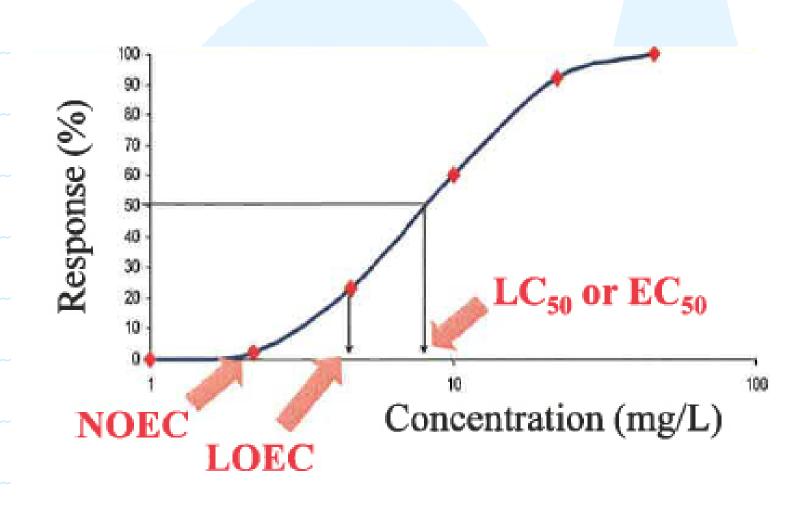   û Bioaccumulation Factor (BCF) (for organics: often as log Kow)

Scenedesmus

1. Deriving ecotoxicity values – Data selection

« **Quality criteria - Data hierarchy**

The best quality data & most sensitive as basis for the classification

1. **Type of test** (standard tests (e.g. OECD) preferred for classification)

2. **Standard species** preferred but non-standard species can be used in case of equivalent endpoints

3. **Relevancy of test medium** (natural & artificial media, conditions related to transformation/dissolution media for classification)

4. **Relevancy of test substance** (solubility, impurities, metabolites)

1.Toxicity assessment : *concentration-effect response*

2. The environmental classification system from DSD/DPD over GHS to CLP (2nd ATP)

2. The system
DSD classification scheme (Dir.67/548)

EC50 Mg/l	R phrases Label		Hazard Label
< 1	R50	N	Very Toxic to Aquatic Env.
< 1 Not rapidly biodegradable and/or BCF>500	R50/53	N	Very Toxic to Aquatic Env. Can cause long term effects
Ø1 < 10 Not rapidly biodegradable and/or BCF>500	R51/53	N	Toxic to Aquatic Env. Can cause long term effects
Ø10 < 100 Not rapidly biodegradable and/or BCF>500	R52/53		Harmful to Aquatic Env. Can cause long term effects
Expected chronic effects	R53		Can cause long term effects

2. UN-GHS Classification Categories

GHS Class	EU DSD and R-Code	Hazard Label in the EU
Acute I		Very Toxic to Aquatic Env.
Acute I & Chronic I		Very Toxic to Aquatic Env Can cause long term effects
Acute II & Chronic II		Toxic to Aquatic Env. Can cause long term effects
Acute III & Chronic III		Harmful to Aquatic Env. Can cause long term effects
Chronic I, II or III		Can cause long term effects
Chronic IV (safety net)		Can cause long term effects

CHRONIC toxicity assessment CRITERIA based on NOECS

EU-CLP Classification Categories

CLP Class	Hazard Label in the EU
Acute I	Very Toxic to Aquatic Env.
Chronic I	Very Toxic to Aquatic Env. Can cause long term effects
Chronic II	Toxic to Aquatic Env. Can cause long term effects
Chronic III	Harmful to Aquatic Env. Can cause long term effects
Chronic IV	Can cause long term effects

Thus no acute 2 or 3

2. Changes introduced by 2nd ATP

CLP	CLP incl. 2nd ATP
- **Chronic tox** = _acute_ tox _corrected for fate properties_ (bio-accumulation potential and bio-degradation)	- **Chronic tox** = based _on real chronic data_ or in absence the surrogate scheme
	- Chronic classification categories depending on _potential for degradation_
- Acute **M factor**	- Acute and Chronic **M factor**

2. Lack of Chronic data

ACUTE TOXICITY

à Acute 1

ü L(E)C$_{50}$ (Fish, Daphnia, Algae) < 1mgL

à Acute 2

ü L(E)C$_{50}$ (Fish, Daphnia, Algae) > 1 but < 10mgL

à Acute 3

ü L(E)C$_{50}$ (Fish, Daphnia, Algae) > 10 but < 100mgL

FATE (surrogate scheme)
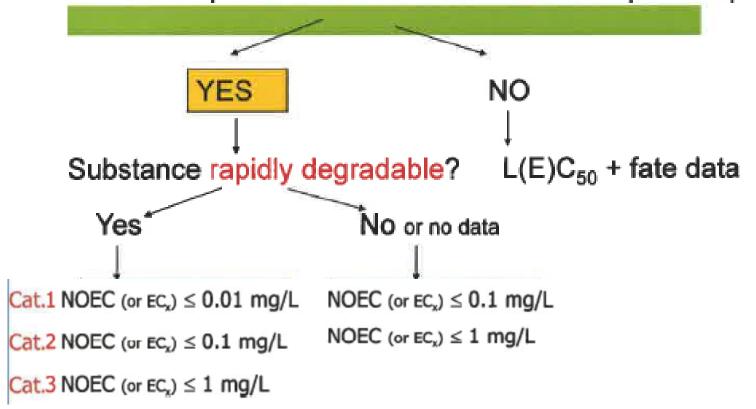
à Rapid degradation :

ü 70% degradability in 28 d

à Bioconcentration

ü fish > 500 or
ü Log Kow < 4
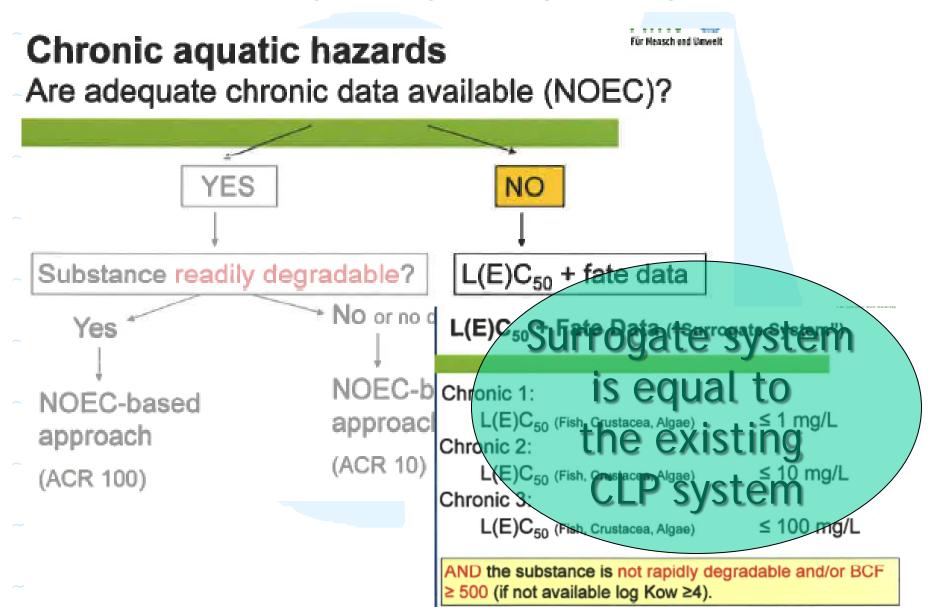
Chronic aquatic hazards

Für Mensch und Umwelt

Are adequate chronic data available (NOEC)?

YES

Substance rapidly degradable?

NO

$L(E)C_{50}$ + fate data

Yes → No or no data

Cat.1 NOEC (or EC_x) ≤ 0.01 mg/L   NOEC (or EC_x) ≤ 0.1 mg/L

Cat.2 NOEC (or EC_x) ≤ 0.1 mg/L   NOEC (or EC_x) ≤ 1 mg/L

Cat.3 NOEC (or EC_x) ≤ 1 mg/L

Chronic aquatic hazards
Are adequate chronic data available (NOEC)?

Für Mensch und Umwelt

YES   NO

Substance readily degradable? $L(E)C_{50}$ + fate data

Yes   No or no d

NOEC-based approach   NOEC-b approac

(ACR 100)   (ACR 10)

$L(E)C_{50}$ + Fate Data (Surrogate System)

Chronic 1:	
$L(E)C_{50}$ (Fish, Crustacea, Algae)	≤ 1 mg/L
Chronic 2:	
$L(E)C_{50}$ (Fish, Crustacea, Algae)	≤ 10 mg/L
Chronic 3:	
$L(E)C_{50}$ (Fish, Crustacea, Algae)	≤ 100 mg/L

AND the substance is not rapidly degradable and/or BCF ≥ 500 (if not available log Kow ≥4).

Surrogate system is equal to the existing CLP system

Surrogate approach
No chronic info available

3. Labeling for the environmental endpoint

3. Labelling

ACUTE 1
CHRONIC 1 and 2

WARNING
(not for C2)

CHRONIC 3 and 4

No pictogram

3. Labelling: Hazard statements

A1   Very toxic to aquatic life
(H400)

C1   Very toxic to aquatic life with long lasting effects
(H410)

C2   Toxic to aquatic life with long lasting effects
(H411)

C3   Harmful to aquatic life with long lasting effects
(H412)

C4   May cause long lasting harmful effects to aquatic life
(H413)

3. Labelling: Precautionary statements

Avoid release to the environment   (P273)

Collect spillage   (P391)

Dispose of contents/container to ...   (P501)

...

Massive versus other forms

Why exclude massive forms from labeling???

4. Specific Environmental classification aspects for data rich and metals/alloys/inorganics

Data rich and "metal" issues and guidance

à Data rich substances :

   ü Scientifically unfair to take to "lowest toxicity reference"

à For metals: "ion" causes often the toxicity

   ü Nominal testing of insoluble substances not allowed

à Metals have specific particularities

   ü Solubility differs for different "physical forms"

   ü "Metal surface" corresponds with loadings

à Need for specific approaches :

   ü Measure release rate and equilibrium to read across between ion and Poorly Soluble Metal Compounds or Metals

Classification strategy for metals
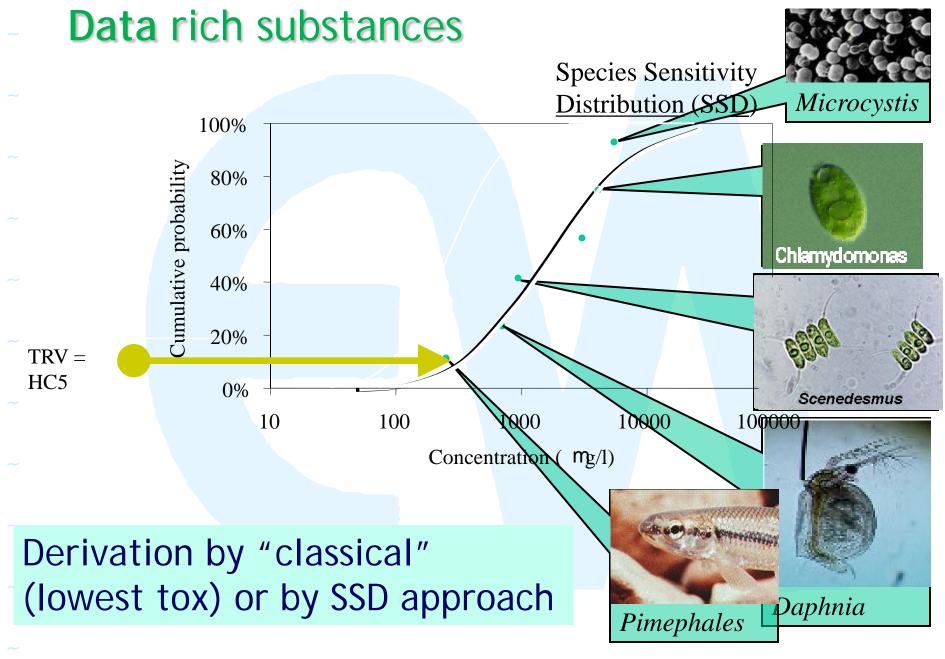
1. Assessment approach for *effects data*

2. Guidance on interpreting *BCF and rapid degradation*

3. *Assessment tool* for release rate and equilibrium (TDp)

4. Classification strategy for metals and metal compounds

Classification example
Data selection- lowest value vs species mean

Test organism	L(E)C$_{50}$ (µg/l)			
	pH: 5.5-6.5	pH: >6.5-7.5	pH: >7.5-8.5	All pHs
Algae				
R. subcapitata				
n	2	3	12	17
Min.	152.0	32.0	12.9	12.9
Max.	194.0	163.1	245.3	245.3
Geometric mean	171.7	76.0	61.8	72.3

In case of data rich substances:

-Use geometric mean when 4 or more effects data for same species and same endpoint, under comparable test conditions

Data rich substances

Species Sensitivity Distribution (SSD)

Microcystis

Chlamydomonas

Scenedesmus

Pimephales

Daphnia

Cumulative probability

100%

80%

60%

40%

20%

0%

TRV = HC5

10   100   1000   10000   100000

Concentration (m g/l)

Derivation by "classical" (lowest tox) or by SSD approach
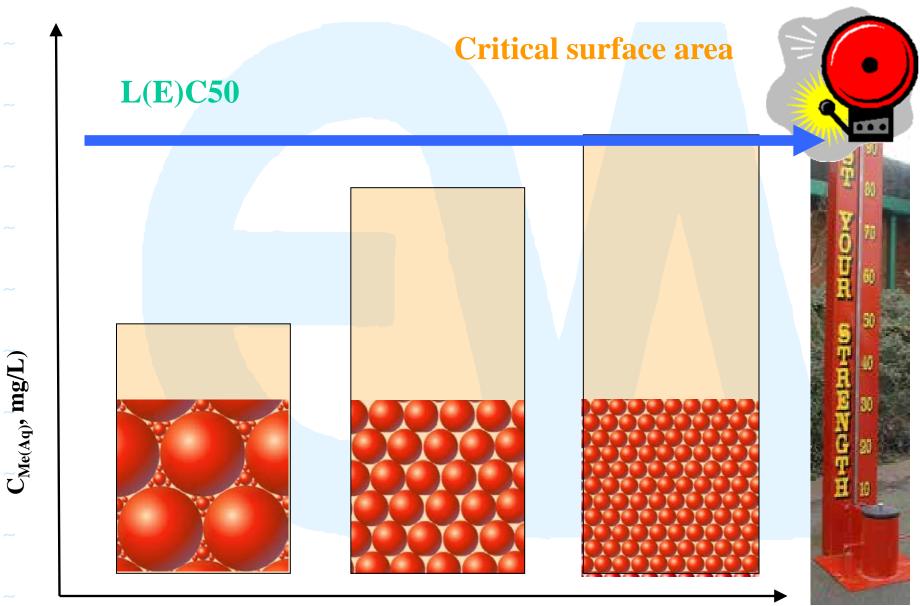
Environmental Classification of metals and metal (compounds)

PRINCIPLES :

- Soluble metal compounds :
    - All classified cf. toxicity metal ion
    - Classification corrected for "molecular weight"

- Metals and Insoluble metals :
    - Classification based on READ ACROSS comparing
        - Ion toxicity
        - Potential of the metal SSMC to release enough ions

Differences in surface area matters !!!

Critical surface area

L(E)C50

$C_{Me(Aq)}$, mg/L)

Surface area)

Classification strategy for metals and alloys

Classification of soluble form

L(E)C$_{50}$ of soluble metal ion > 100 mg/L — **Yes** → **No classification**

No ↓

Metal compound — **Yes** → Solubility ≥ L(E)C$_{50}$ *based on availability of other information then T/Dp* — **No** → No or no data. Carry out 24h screening T/D test

Yes ↓

Consider soluble
Classify on basis of soluble ion, corrected for MW
L(E)C$_{50}$ ≤ 1 mg/L: **Acute class I- Chronic I (N; R50-53)****
1 mg/L < L(E)C$_{50}$ ≤ 10 mg/L: **Acute class II-Chronic II (N; R51-53)*/****
10 mg/L < L(E)C$_{50}$ ≤ 100 mg/L: Acute class III-Chronic III (N; R52-53)*/**

ONLY UNDER GHS

Concentration ≥ L(E)C$_{50}$ — **Yes** → Classify as soluble ion corrected for MW

No, consider sparingly soluble →

No (Metal compound) ↓

Default classification metals and SSMC

Metals
Default particle size:
< 1 mm = powder
> 1mm = massive
→ Apply default **Chronic IV (R53)**
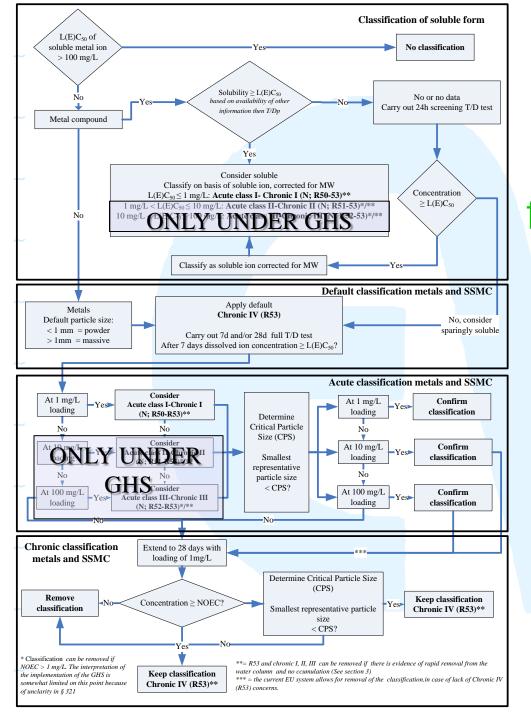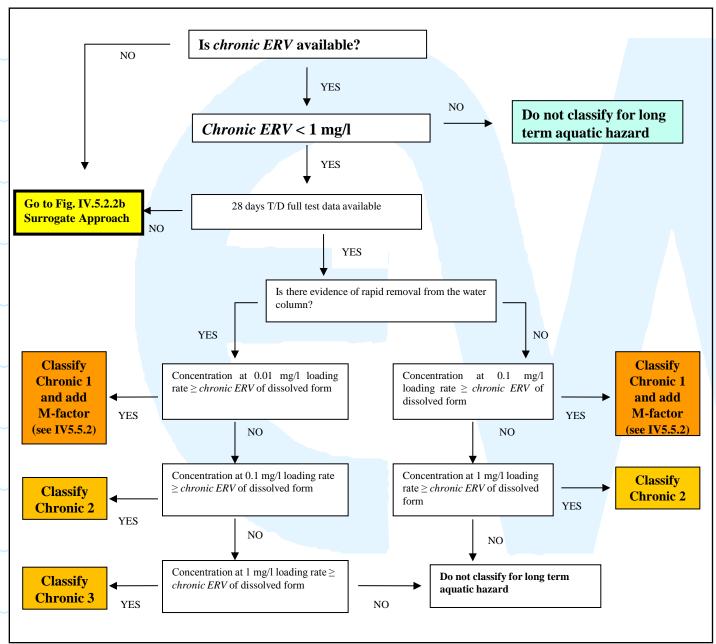
Carry out 7d and/or 28d full T/D test
After 7 days dissolved ion concentration ≥ L(E)C$_{50}$?

Acute classification metals and SSMC

At 1 mg/L loading — **Yes** → **Consider Acute class I-Chronic I (N; R50-R53)****

No ↓

At 10 mg/L loading — **Yes** → **Consider Acute class II-Chronic II (N; R51-R53)*/****

ONLY UNDER GHS

No ↓

At 100 mg/L loading — **Yes** → **Consider Acute class III-Chronic III (N; R52-R53)*/****

Determine Critical Particle Size (CPS)
Smallest representative particle size < CPS?

At 1 mg/L loading — **Yes** → **Confirm classification**

No ↓

At 10 mg/L loading — **Yes** → **Confirm classification**

No ↓

At 100 mg/L loading — **Yes** → **Confirm classification**

No

Chronic classification metals and SSMC

Extend to 28 days with loading of 1mg/L
***

Concentration ≥ NOEC? — **No** → **Remove classification**

Determine Critical Particle Size (CPS)
Smallest representative particle size < CPS? — **Yes** → **Keep classification Chronic IV (R53)****

Yes ↓ → **Keep classification Chronic IV (R53)****

No (CPS)

* Classification can be removed if NOEC > 1 mg/L. The interpretation of the implementation of the GHS is somewhat limited on this point because of unclarity in § 321

**= R53 and chronic I, II, III can be removed if there is evidence of rapid removal from the water column and no ccumulation (See section 3)
*** = the current EU system allows for removal of the classification.in case of lack of Chronic IV (R53) concerns.

CLP scheme for chronic endpoint

Is *chronic ERV* available?

NO →

YES ↓

Chronic ERV < 1 mg/l —NO→ **Do not classify for long term aquatic hazard**

YES ↓

(NO →) **Go to Fig. IV.5.2.2b Surrogate Approach** ← 28 days T/D full test data available

YES ↓

Is there evidence of rapid removal from the water column?

YES ↓ ← → NO ↓

Concentration at 0.01 mg/l loading rate ≥ *chronic ERV* of dissolved form

YES → **Classify Chronic 1 and add M-factor (see IV5.5.2)**

NO ↓

Concentration at 0.1 mg/l loading rate ≥ *chronic ERV* of dissolved form

YES → **Classify Chronic 2**

NO ↓

Concentration at 1 mg/l loading rate ≥ *chronic ERV* of dissolved form

YES → **Classify Chronic 3**

Concentration at 0.1 mg/l loading rate ≥ *chronic ERV* of dissolved form

YES → **Classify Chronic 1 and add M-factor (see IV5.5.2)**

NO ↓

Concentration at 1 mg/l loading rate ≥ *chronic ERV* of dissolved form

YES → **Classify Chronic 2**

NO ↓

Do not classify for long term aquatic hazard

Transformation Dissolution testing

PRINCIPLES

à 24h screening test

- ü for metal salts to proof different solubility and
- ü determine pH dependency

à Full test

- ü 7 d at pH that dissolves most
  - û Used to classify for acute
  - û Doses to be tested for DSD/GHS :   1, 10 and 100 mg/l
  - û Doses to be tested for CLP :   1 mg/l
- ü 28 d at pH that dissolves most
  - û Used to classify for chronic
  - û Doses to be tested for DSD :   1 mg/l
  - û Doses to be assessed* for CLP 2nd :   1, 0,1 and 0,01 mg/l

  * can be calculated

Classify on basis of TDp : Determine critical surface loading

best fit regression line: SL_a
$\log(C_{Me,aq}) = a + b \cdot \log(SL_a)$

Me-specific surface release

log L(E)C$_{50}$

Determine the L(E)C50 value of metal concentration for the most appropriate aquatic organism and then calculate the critical surface area (A_{crit}) of the metal from the intersection

log (critical surface loading)

y-axis: **$\log(C_{Me(Aq)}, mg/L)$**

x-axis: **$\log(SL_a,$ surface loading, mm²/L)**
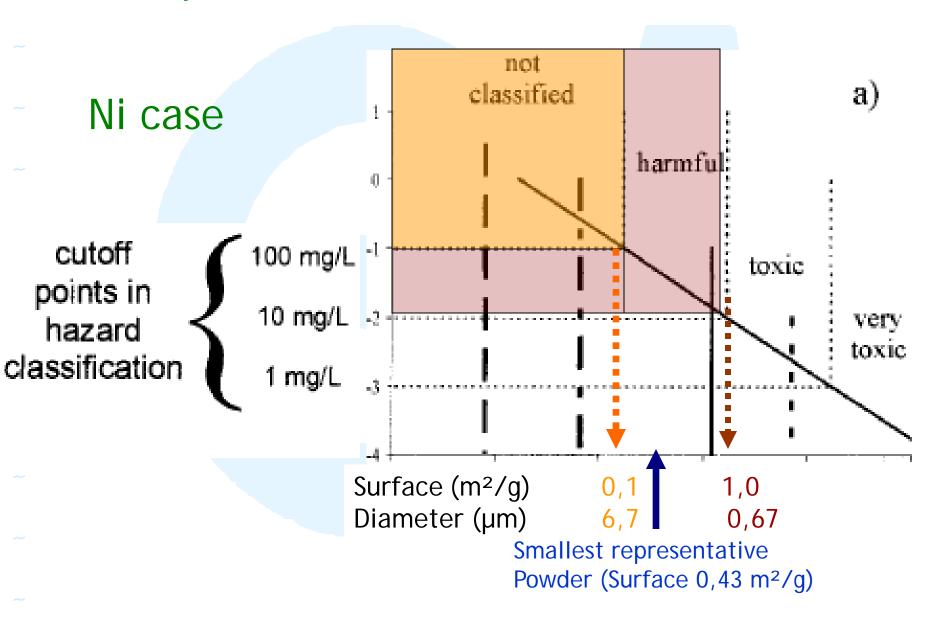
surface area loading (A, mm²/L) = substance specific surface area (SA, m²/g) * substance mass loading (g/L)

SA = area (m²)/mass (g)

1, 10, 100 mg/l

An example Ni metal Powder Classification

~

~ Ni case

~

cutoff points in hazard classification

| Surface (m²/g) | 0,1 | 1,0 |
| Diameter (µm) | 6,7 | 0,67 |

Smallest representative Powder (Surface 0,43 m²/g)

Classification for metal compounds
MW correction: only SOMETIMES !!!

Classification :

ü **Reference ecotoxicity** of the metal ion µg Me/L &
Molecular weight correction (MWC) if relevant

When is MWC relevant?

ü Metal (ion) : MWC = 1

ü Soluble metal compound : MWC correction

ü Poorly soluble ion : MWC correction included in TDp
test (100 mg/l loading of poorly compound)

à The same actually applies when a WAF
method is used for organics !!

Metal Powder/Massive Env. Classification : example of Ni : *Conclusions*

WITHOUT TDp evidence : based on "read across from ion tox"
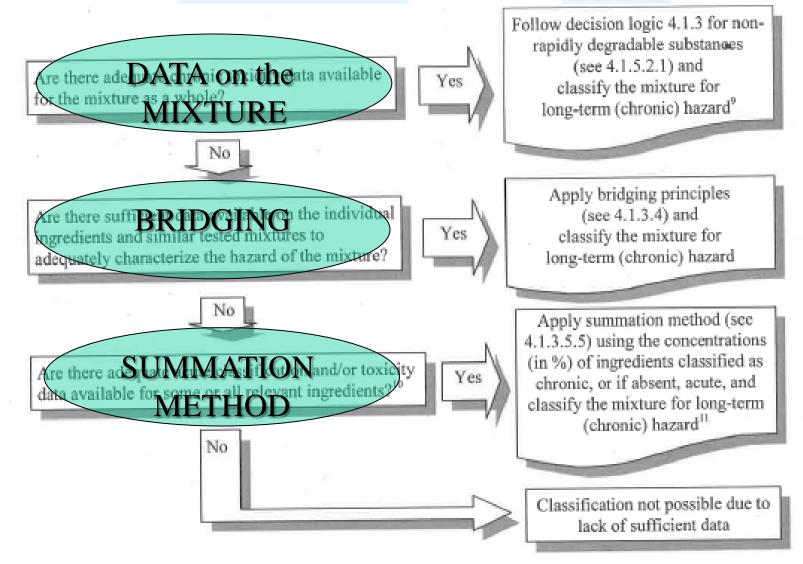
à Ni powder and Ni metal classified as ACUTE 1 !!!!

à Ni metal massive classified as CHRONIC 4 !!!

WITH TDp evidence: based on "dissolution kinetics"

à Ni powder classified as ACUTE 3 under DSD and no classification under CLP if raid removal is recognised

à Ni massive NOT classified !!!

5. Classification of mixtures

5. Classification of mixtures for the environmental endpoint

Are there adequate environmental data available for the mixture as a whole?

DATA on the MIXTURE

Yes → Follow decision logic 4.1.3 for non-rapidly degradable substances (see 4.1.5.2.1) and classify the mixture for long-term (chronic) hazard[g]

No ↓

Are there sufficient data available on the individual ingredients and similar tested mixtures to adequately characterize the hazard of the mixture?

BRIDGING

Yes → Apply bridging principles (see 4.1.3.4) and classify the mixture for long-term (chronic) hazard

No ↓

Are there adequate classification and/or toxicity data available for some or all relevant ingredients?[h]

SUMMATION METHOD

Yes → Apply summation method (see 4.1.3.5.5) using the concentrations (in %) of ingredients classified as chronic, or if absent, acute, and classify the mixture for long-term (chronic) hazard[H]

No → Classification not possible due to lack of sufficient data

5. How to classify mixtures?

à By testing the mixtures :

- ü Expensive and "not possible" for alloys and sparingly soluble metals and inorganics since nominal testing is NOT allowed
- ü The GHS foresees ONLY a testing possibility in TDp water (not a WAF approach)

à By bridging principles :

- ü A preparation very close to the one under assessment
- ü Not recommended (when / for metals) composition does not predict release

à By applying "calculation rules" :

- ü "Summation rule" for Mixtures
- ü "Additivity rule" for mixtures that are substances under REACH/CLP (inorganic UVCB's)

5. Are test data available on similar mixtures or individual components?

USE BRIDGING RULES

- **Dilution**: if diluent has an equivalent or lower aquatic hazard classification then resulting mixture same classification as original mixture

- **Batching**: where a batch of a mixture is produced under a controlled process than the hazards of each new batch are equivalent to the previous batch

- **Substantially similar mixtures**: each mixture contains an additional ingredient which is not identical but are present in equivalent concentrations and same hazard category

5. M factor correction

à Applied to substances classified as "acute 1" and/or "chronic 1"

à Corrects for the very high ecotoxic potential is > 10 x as the cut-off for that category

à Is applied to correct the cut-off to calculate the hazard ID for mixtures

NEW: TDp can be used to correct the M factor based on "differential release" for massive forms

5. The M-factor under CLP

Annex I: 4.1.3.5.5.5.1.	
Table 4.1.3	
Multiplying factors for highly toxic components of mixtures	
L(E)C$_{50}$ value mg/l	**Multiplying factor (M)**
$0.1 < L(E)C_{50} \leq 1$	1
$0.01 < L(E)C_{50} \text{ £ } 0.1$	10
$0.001 < L(E)C_{50} \text{ £ } 0.01$	100
$0.0001 < L(E)C_{50} \text{ £ } 0.001$	1 000
$0.00001 < L(E)C_{50} \text{ £ } 0.0001$	10 000
(continue in factor 10 intervals)	

M-factor is used to classify preparations for highly ecotoxic substances and must be communicated through the SDS

5. The M Factor under 2nd ATP

Acute toxicity	M factor	Chronic toxicity	M factor	
$L(E)C_{50}$ value mg/l		NOEC value mg/l	NRD[a] components	RD[b] components
$0,1 < L(E)C_{50} \leq 1$	1	$0,01 < NOEC \leq 0,1$	1	-
$0,01 < L(E)C_{50} \leq 0,1$	10	$0,001 < NOEC \leq 0,01$	10	1
$0,001 < L(E)C_{50} \leq 0,01$	100	$0,0001 < NOEC \leq 0,001$	100	10
$0,0001 < L(E)C_{50} \leq 0,001$	1000	$0,00001 < NOEC \leq 0,0001$	1000	100
$0,00001 < L(E)C_{50} \leq 0,0001$	10000	$0,000001 < NOEC \leq 0,00001$	10000	1000
(continue in factor 10 intervals)		(continue in factor 10 intervals)		

Annex I: *Table 4.1.3*

Multiplying factors for highly toxic components of mixtures

[a] *Non-rapidly degradable*
[b] *Rapidly degradable*

This could lead **to different Hazard categories** if :
A-C ratio is < 10 or > 100

WARNING !!!

For substances on Annex VI:

- **Rule 1**: The hazard classification of Annex VI **must be used**
  - unless a higher CI category is required based on "new evidence"

- **Rule 2** : **Not all endpoints may have been covered** and M factors were often not taken over; So this responsibility maintains with the registrant
  - Be especially careful with M factors (acute and chronic)

5. How to classify preparations?

Classification of a mixture for chronic (long term) hazards, based on summation of classified components

Sum of components classified as:	Mixture is classified as:
Chronic Category $\geq$ 25 %	Chronic Category 1
(10 ´ Chronic Category 1) + Chronic Category 2 $\geq$ 25 %	Chronic Category 2
(100 ´ Chronic Category 1) + (10 ´ Chronic Category 2) + Chronic Category 3 $\geq$ 25 %	Chronic Category 3
Chronic Category 1 + Chronic Category 2 + Chronic Category 3 + Chronic Category 4 $\geq$ 25 %	Chronic Category 4

5. M-factor application to preparations

Classification of a mixture for chronic (long term) hazards, based on summation of classified components

Sum of components classified as:	Mixture is classified as:
Chronic Category 1 ´ **M** ≥ 25 %	Chronic Category 1
(**M** ´ 10 ´ Chronic Category 1) + Chronic Category 2 ≥ 25 %	Chronic Category 2
(**M** ´ 100 ´ Chronic Category 1) + (10 ´ Chronic Category 2) + Chronic Category 3 ≥ 25 %	Chronic Category 3
Chronic Category 1 + Chronic Category 2 + Chronic Category 3 + Chronic Category 4 ≥ 25 %	Chronic Category 4

5."Additivity" versus "Summation"

Summation	Additivity
- Based on % of substance classified in a given category	- Based on L(E)C50 of each component
- Relevant for **ALL MIXTURES**	- **ONLY for SUBSTANCES** than contains several components (with known or partly known classification)
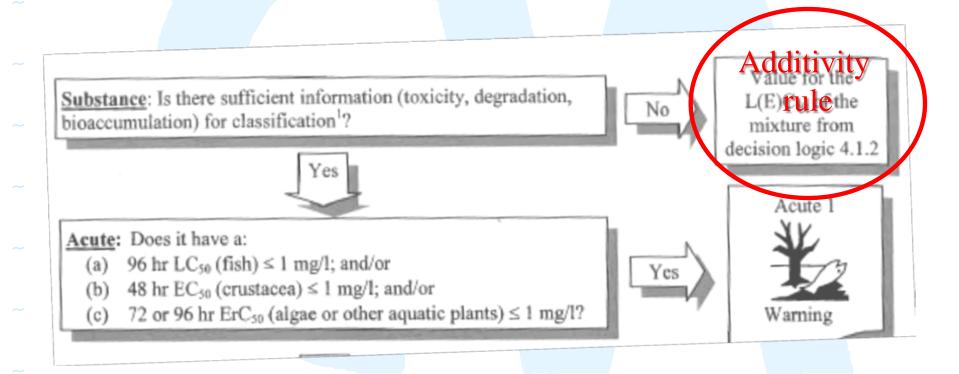
"Additivity" versus "summation"

Substance: Is there sufficient information (toxicity, degradation, bioaccumulation) for classification[1]?

→ **No** → Additivity rule *(Value for the L(E)₅₀ of the mixture from decision logic 4.1.2)*

↓ **Yes**

Acute: Does it have a:
- (a) 96 hr LC_{50} (fish) ≤ 1 mg/l; and/or
- (b) 48 hr EC_{50} (crustacea) ≤ 1 mg/l; and/or
- (c) 72 or 96 hr ErC_{50} (algae or other aquatic plants) ≤ 1 mg/l?

→ **Yes** → Acute 1 — Warning

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🔑 LICENSE

In order to use the tool a license is needed.

A short description of the MECLAS tool and the license costs can be found here.

You must register and obtain a Login account in order to access the MeClas tool and all supporting information.

☰ NEWS

The **MeCLAS** tool is officially released at Eurometaux (Metal Conference Centre) on 30th August 2010.

You must register and obtain a Login account in order to access the MeClas tool.

→ LOGIN

Username:

Password:

(login)

register / forgot password?

Welcome to the MeCLAS website

The smartest way of fulfilling your classification obligations

Most complex materials in the metals sector contain a spectrum of different metals (compounds) and minerals, which therefore requires extensive physico-chemical, toxicity and ecotoxicity reference data sets. The MeCLAS tool offers a unique web-enabled classification tool that is always updated to the latest classification rules. The tool comprises several tiers, aimed at the progressive refinement of classification through recognition of speciation, specific mineral content and the availability of test data on the complex material in question.
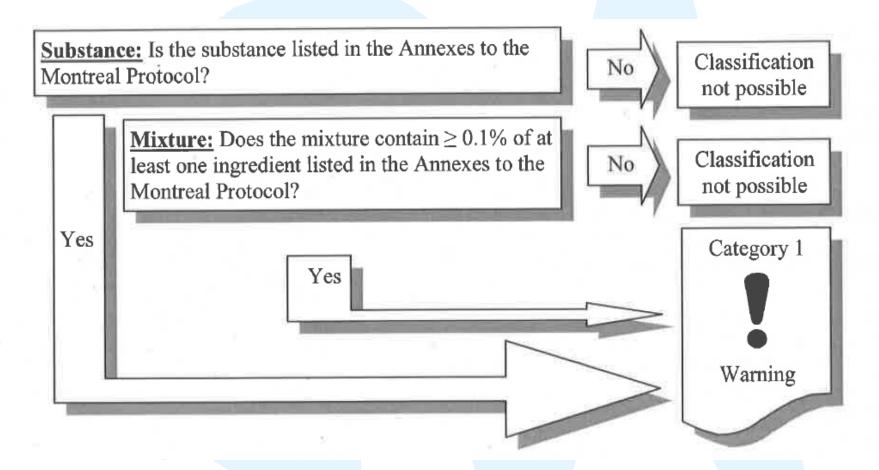
A licence is needed in order to use the tool. You must register and obtain a Login account in order to access the MeCLAS tool and all supporting information.

The MeCLAS tool has been developed jointly by EUROMETAUX and ARCHE

6. Hazardous for the Ozon layer

Hazardous for the Ozon layer

Substance: Is the substance listed in the Annexes to the Montreal Protocol? — **No** → Classification not possible

Mixture: Does the mixture contain ≥ 0.1% of at least one ingredient listed in the Annexes to the Montreal Protocol? — **No** → Classification not possible

Yes

Yes →

→ Category 1

!

Warning

For substances on the Montreal protocol list

Examples on ENV. Mixtures classification

Example: an inorganic mixture

Poorly soluble metal compound with:

- Acute & chronic toxicity data on the components,

- _With or without_: Transformation/Dissolution data at 7 d's and at 28 d's on the alloy

- **_With or without of evidence_** _of Rapid removal from the water column._

Example: a mixture with
known tox but no rapid degradation

DATA:

- Substance 1 : NOEC :   4 μg/l, 5% in mixture
- Substance 2 : NOEC : 40 μg/l, 10% in mixture
- Substance 3 : no chronic tox ;   85% in mixture

Classification:

- (5% * 10) + (10% * 1) = 60 %
- > 25%, so Chronic 1

Example: a mixture with
known tox AND rapid degradation

DATA:

- Substance 1 : NOEC : 4 µg/l, 5% in mixture

- Substance 2 : NOEC : 40 µg/l, 10% in mixture

- Substance 3 : no chronic tox ; 85% in mixture

Classification:

- (5% * 1) + (10% * 1) = 15 %

- \> 2,5 but <25% but, so Chronic 2

Example 3: mixture 1 (glass) with *known tox and TDp and non-degradable*

DATA:

- Subst. 1: NOEC: 4 µg/l, 5% in mixt., TDp: 2µg/l at 1mg/l
- Subst. 2: NOEC: 40 µg/l,10% in mixt., TDp: 80µg/l at 1mg/l

                                            8µg/l at 0,1 mg/l

- Subst. 3: no chronic tox; 85% in mixture

Classification: of GLASS powder (special mixture)

- Subst. 1 : TDp < NOEC: not taken forward for Cl
- Subst. 2 : TDp > NOEC: taken forward for Cl
- If No Rapid degradability: Chronic 3
- If Rapid degradability: no classification

Questions : *to train your brains*

à When do I need to **analyse for concentrations of** constituents in a mixture below 0,25 % ?

    ü ANSWER : When an M factor of 10 or more is applied !

        û Eg Silver ions M factor 1000x requires a concentration cut off of 0,00025%

à Are there conditions when I **classify for the environ-ment** even when "no acute" nor "chronic" classification category can be applied ?

    ü ANSWER : YES chronic 4 can be applicable IF

        û No chronic/acute data are available for the 3 throphic level nevertheless there is "grounds for concern"

        û For metals/inorganics when massives are not tested for TDp while the soluble ion is classifiable

Questions : *to train your brains (2)*

à Can I always apply an **acute/chronic ecotox test** to a mixture to define the appropriate hazard category ?

    ü ANSWER : Mostly possible BUT not always !

        ü NOMINAL testing is NOT allowed

        ü REMINDER: vertebrate testing under REACH requires a Testing Proposal (Substances)

à Can I apply the accumulation rule on a **UVCB** substance?

    ü ANSWER : YES because a SUBSTANCE (not a MIXTURE)

à When do **I not need to correct for the Molecular Weight** of a/the ingredient(s)?

    ü ANSWER: when a WAF or a TDp result is used on an insoluble given the loading of the test already accounts for the MW !