We support the proposed classification of copper sulphate pentahydrate and tribasic copper sulphate. However , based on the acute and chronic ERV, we believe that copper sulphate should also be classified as Aquatic acute1, H400 and aquatic chronic 2, H411. Furthermore the lowest acute ERV for the copper at pH 5.5-6.5 was recorded for Pimephales promelas instead of for Oncorhynchus mykiss. If the number of datapoints<4, the lowest value should be taken. The lowest datapoint (n=2) for Pimephalus promelas = 0.0044mg/l which has an impact on the proposed M-factor.

Reference values for aquatic organisms

| pH range | Ecotoxicity Reference Value (ERV) | |
|---|---|---|
| | L(E)C50 (mg Cu/l) | NOEC (mg Cu/l) |
| pH 5.5-6.5 | 0.0044 | 0.0200 |
| pH >6.5-7.5 | 0.0473 | 0.0074 |
| pH >7.5-8.5 | 0.0298 | 0.0160 |

Copper sulphate (CAS 7758-98-7), $CuSO_4$, MW=159.6 g/mol, WS=203 g/L at 20°C
Aquatic acute 1, H400
$M_{acute}$ = 10
Aquatic chronic 2, H411

| pH range | Ecotoxicity Reference Value (ERV) $CuSO_4$ | |
|---|---|---|
| | L(E)C50 (mg/l) | NOEC (mg/l) |
| pH 5.5-6.5 | 0.011 | 0.050 |
| pH >6.5-7.5 | 0.119 | 0.019 |
| pH >7.5-8.5 | 0.075 | 0.040 |

The Acute ERV, corrected for molecular weight < 1 mg/l and therefore copper sulphate should be classified as Aquatic acute 1, H400 with acute M-factor of 10 (0.01mg/l <LC50≤0.1mg/l).

Based on the results of the aquatic chronic toxicity test on the most sensitive species (invertebrate Ceriodaphnia dubia, at pH >6.5-7.5), the lowest Chronic ERV for the metal compound is 0.019 mg/l. If the chronic ERVcompound > 0.01 mg/l and ≤ 0.1 mg/l and there is evidence of rapid environmental transformation, than the compound should be classified as chronic category 2.

Copper sulphate pentahydrate (CAS 7758-99-8), $CuSO_4.5H_2O$, MW=249.68 g/mol
Aquatic acute 1, H400
$M_{acute}$ = 10
Aquatic chronic 2, H411

| pH range | Ecotoxicity Reference Value (ERV) $CuSO_4.5H_2O$ | |
|---|---|---|
| | L(E)C50 (mg/l) | NOEC (mg/l) |
| pH 5.5-6.5 | 0.011 | 0.050 |
| pH >6.5-7.5 | 0.119 | 0.019 |
| pH >7.5-8.5 | 0.075 | 0.040 |

The Acute ERV (based on the lowest mean value and adjusted for molecular weight of the metal compound) < 1 mg/l and therefore copper sulphate should be classified as Aquatic acute 1, H400 with acute M-factor of 10 (0.01mg/l <LC50≤0.1mg/l).

Based on the mean result of the aquatic chronic toxicity test on the most sensitive species (invertebrate Ceriodaphnia dubia, at pH >6.5-7.5), the lowest Chronic ERV for the metal compound is 0.029 mg/l. If the chronic ERVcompound > 0.01 mg/l and ≤ 0.1 mg/l and there is evidence of rapid environmental transformation, than the compound should be classified as chronic category 2.

Tribasic copper sulphate (CAS 12527-76-3), $Cu_4H_7O_{10.5}S$, MW = 461.3 g/mol, WS= 3.42 mg/l (pH5.6) and 0.255mg/l (pH9.8) at 20°C
Aquatic acute 1, H400
$M_{acute}$ = 100
Aquatic chronic 2, H411

| pH range | Ecotoxicity Reference Value (ERV) $Cu_4H_7O_{10.5}S$ | |
|---|---|---|
| | L(E)C50 (mg/l) | NOEC (mg/l) |
| pH 5.5-6.5 | 0.008 | 0.036 |
| pH >6.5-7.5 | 0.086 | 0.013 |
| pH >7.5-8.5 | 0.054 | 0.029 |

The Acute ERV (adjusted for molecular weight of the metal compound) : 0.008mg/l < 1 mg/l and therefore copper sulphate should be classified as Aquatic acute 1, H400 with acute M-factor of 100 (0.001mg/l <LC50≤0.01mg/l) instead of 10.

Based on the results of the aquatic chronic toxicity test on the most sensitive species (invertebrate Ceriodaphnia dubia, at pH >6.5-7.5), the lowest Chronic ERV for the metal compound is 0.013 mg/l. If the chronic ERVcompound > 0.01 mg/l and ≤ 0.1 mg/l and there is evidence of rapid environmental transformation, than the compound should be classified as chronic category 2.