Chlorine
CAS 7782-50-5

Risk Analysis Background Documentation

AAL Recommendation (11-30-92)

SAB Recommendation Summary

Chlorine

decision on November 30, 1992

Chlorine is both an acute irritant and a chronic toxicant so two AALs were recommended, one with a 15-minute averaging time, another with a 24-hour averaging period. Using the NCAS decision tree as a guideline, the 15-minute AAL is the ACGIH STEL / 10. NCAS guidelines for a factored TLV for chronic exposure include a factor of 4 to convert the TWA from an 8-hour exposure to a 24-hour exposure, a factor of 2 to extrapolate from an acute to a chronic exposure, and a safety factor of 10 for interindividual variability (4 x 2 x 10). NCAS guidelines for a factored TLV for acute exposure recommend using the STEL divided by 10. The ACGIH chlorine STEL is 1 ppm, or 2.9 mg/m³. The ACGIH TWA is 0.5 ppm, or 1.5 mg/m³. The calculations follow:

15-minute AAL: \( \frac{2.9 \, \text{mg/m}^3}{10} = 0.3 \, \text{mg/m}^3 \)

24-hour AAL: \( \frac{1.5 \, \text{mg/m}^3}{(4 \times 2 \times 10)} = 0.02 \, \text{mg/m}^3 \)