ACGIH Standard for Hydrogen Sulfide

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NIOSH DATA

- **CAS number:** 7783–06–4
- **NIOSH REL:** 10 ppm (15 mg/m³) 10-minute CEILING
- **Current OSHA PEL:** 20 ppm CEILING, 50 ppm 10-minute MAXIMUM PEAK
- **1989 OSHA PEL:** 10 ppm (14 mg/m³) TWA, 15 ppm (21 mg/m³) STEL
- **1993-1994 ACGIH TLV:** 10 ppm (14 mg/m³) TWA, 15 ppm (21 mg/m³) STEL
Current OSHA Standard for H2S

- OSHA PEL’s based on 1960’s data

- **General Industry**: [29 CFR 1910.1000 Z-2 Table](#) -- Exposures shall not exceed 20 ppm (ceiling) with the following exception: if no other measurable exposure occurs during the 8-hour work shift, exposures may exceed 20 ppm, but not more than 50 ppm (peak), for a single time period up to 10 minutes.

- Low Alarm 10ppm, High Alarm 15ppm
What is the American Conference of Governmental Industrial Hygienists (ACGIH®) recommended exposure limit for hydrogen sulfide?

- ACGIH® TLV® - TWA: 1 ppm (factor of 10)
- ACGIH® TLV® - STEL [C]: 5 ppm

**Exposure Guideline Comments:** TLV® = Threshold Limit Value. TWA = Time-Weighted Average. STEL = Short-term Exposure Limit. C = Ceiling limit.

- Low alarm set point at 0.1ppm
Lack of Industry Awareness

- ASSE Study of its Members (November 2013)
- The study reveals that 53% of safety experts in the oil and gas industry are unaware of the new (recommended) standards*.

*Source: by American Society of Safety Engineers
So, if companies are not using the new TLV standard of 1 ppm, what H2S alarm level are they currently using? The responses varied greatly:

- 39% use 10 ppm and 15 ppm
- 35% use 5 ppm and 10 ppm
- 15% use 10 ppm and 20 ppm
Current Manufacturing Issues

- Sensor technology is allowing for 0.1ppm resolution
- Electrochemical sensor “noise” issues
- Dead Banding typically between 2-4ppm (with 1ppm resolution) H2S sensors
- Accuracy issues with older technology sensors
- Cross Sensitivity Issues
Precautions & Reminders

- Use detection equipment when working in an area where there is a possibility of H₂S, especially in enclosed or below grade locations (holes, trenches, reserve pits, etc.).
- Maintain and calibrate detection equipment per manufacturer’s specifications. (ISEA)
- IDLH for H₂S is ONLY 100ppm!