



# Tool Box Talk

## Hydrogen Sulphide (H<sub>2</sub>S) Safety

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### OVERVIEW

Hydrogen Sulphide (H<sub>2</sub>S) is a colourless, extremely flammable, compressed gas. Some common names for it include, sewer gas, swamp gas, and manure gas. Crude petroleum, natural gas, and hot springs are some of the places it occurs naturally. It can also be produced by the break down of bacteria from human and animal wastes (e.g. sewage) as well as industrial activities, including petroleum/ natural gas drilling and refining, wastewater treatment, agriculture silos and pits, food processing, hot asphalt paving, mining and during excavation work on a construction site. When agitated, depressurized or heated, H<sub>2</sub>S can be released from liquids.

H<sub>2</sub>S may explode if heated and ignition and flashback from a distance is possible. It can accumulate in hazardous amounts in low-lying areas — especially inside confined spaces — as it is slightly heavier than air and may travel along the ground and collect in areas that are low-lying, enclosed, and not well ventilated.

### EXPOSURE



H<sub>2</sub>S is very toxic and fatal if inhaled. It is both an irritant and a chemical asphyxiant that effects the central nervous system. In low concentrations, at initial contact it can smell like

rotten eggs and can irritate the eyes, nose, throat and respiratory system (e.g. burning/tearing of eyes, cough, shortness of breath). Moderate concentrations can cause more severe eye and respiratory irritation, including coughing, difficulty breathing, and fluid in the lungs. High concentrations can cause shock, convulsions, inability to breathe, extremely rapid unconsciousness, coma, and death.

### PROTECTION

For safe handling procedures, a hydrogen sulphide Safety Data Sheet (SDS) should be consulted. Hazard exposure can be reduced with the proper training, practices, procedures, controls, hazard assessments, and emergency procedures.

Additionally, workers should be trained in the use of electronic and/or tube monitors, fit tested for either a full-face, positive-pressure self-contained breathing apparatus (SCBA) or a full-face, positive-pressure supplied air breathing apparatus (SABA) equipped with a minimum of a 5-minute escape air bottle and full body hazmat suits.

### LEGISLATION

Saskatchewan H<sub>2</sub>S legislation can be found in *The Occupational Health and Safety Regulations, 1996* in PART XXI Chemical and Biological Substances, PART XXIX Oil and Gas Section 412(2)(d), Section 439(e-g); and Table 21 Contamination Limits (see below). In Saskatchewan, the Occupational Exposure Limit (OEL) is an average of eight hours if the average contamination limit is 10 parts per million (ppm) and the 15-minute limit is 15 ppm. Every employer whose workforce might come into contact with Hydrogen Sulphide must comply with any regulations that apply. They must also maintain a watching brief on these issues concerning exposure values permitted for their workers.

CAS* Number	Substance	8 hour average contamination limit mg/m <sup>3</sup> or ppm*	15 minute average contamination limit mg/m <sup>3</sup> or ppm
7783-06-4	Hydrogen sulphide	10 ppm	15 ppm

\*mg/m<sup>3</sup> - milligrams of substance per cubic metre of air; ppm - parts (volume) of substance per million parts (volume) of air

\* CAS means the Chemical Abstracts Service Division of the American Chemical Society.

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## How To Use This Resource

When accidents and incidents happen on the jobsite, we are always quick to point the finger at lack of training, not following practices or procedures, or even improper supervision. The idea that the hazards and dangers associated with the job were not properly communicated to all of the workers is often missed.

Tool Box Talks can go by many names, and although formats may vary, these meetings all serve one purpose: to inform employees and contract workers. Tool Box Talks are short, informal, meetings between management and the workers on a jobsite. The goal of these meetings is to reinforce current safe job procedures, inform workers of new and/or relevant procedures, review recent safety violations/incidents, and ensure workers are up-to-date on the information required to complete their work safely.

Always use a Tool Box Talk form to record the meeting topic, date, who was in attendance, and any follow-up actions to be taken. Not only do these forms help with consistency of record keeping, but they also ensure that nothing is missed. At the end of the meeting have management sign off on the form.

One of the most important aspects of a Tool Box Talk is giving workers an opportunity to voice their concerns and ask questions. All employees have a right to participate in health and safety as it relates to their work and it is the supervisor or manager's responsibility to create an environment for them to do so. Once the meeting is over, and the form is filled out, it should be filed with other documented Tool Box Talks. Remember that Tool Box Talks are short and informal, they are not meant to be intimidating. Use the opportunity to have fun and stay on top of what is necessary to keep safety culture a strong part of the business.



**For a full listing of Tool Box Talk topics, visit: [www.scsaonline.ca/resources/tool-box-talks](http://www.scsaonline.ca/resources/tool-box-talks)**

**For a copy of the Tool Box Talk form, visit: [www.scsaonline.ca/pdf/Tool\\_Box\\_Meeting.pdf](http://www.scsaonline.ca/pdf/Tool_Box_Meeting.pdf)**

## ABOUT THE SASKATCHEWAN CONSTRUCTION SAFETY ASSOCIATION

*The Saskatchewan Construction Safety Association (SCSA) is an industry-funded, membership-based, non-profit organization that provides cost-effective, accessible safety training and advice to employers and employees in the construction industry throughout the province to reduce the human and financial losses associated with injuries. Registered March 20, 1995, the SCSA is, and has been since inception, committed to injury prevention. Serving almost 10,000 member companies with business offices in both Regina and Saskatoon, the major business units of the association are Advisory Services, Business Development, Corporate Services, Program Services and Training. The mission of the SCSA is constructing safety leadership in Saskatchewan and the vision is to create the safest construction environment in Canada.*