



**Health Effects of Short-Term Exposure to H₂S
October 2006**

Concentration ppm (ppb)	Effect
0.0005 (0.5 ppb)	<ul style="list-style-type: none"> • some people are able to detect a difference in the odour quality of the air
0.001 – 0.01 (1 - 10 ppb)	<ul style="list-style-type: none"> • 0.008 ppm or 8 ppb: mean odour detection threshold - noticeable difference in odour quality of air
0.01 – 0.1 (10 – 100 ppb)	<ul style="list-style-type: none"> • mildly offensive “rotten egg” odour detected • 14 ppb quality-of-life complaint threshold¹ (nose only exposure) • 25 ppb, eye irritation begins • exacerbation of asthma and respiratory diseases possible in susceptible individuals exposed to 30 ppb and higher for 30 minutes or longer with repeated exposures over a few months. • 40 ppb annoyance threshold² (calculated)
0.1 – 1.0 (100 ppb – 1 ppm)	<ul style="list-style-type: none"> • odour becomes stronger as concentrations increase • 140 ppb annoyance threshold² for adults - no eye exposure (nose only exposure) • susceptible individuals may experience nausea, headaches, insomnia, dizziness, mild adverse respiratory and eye effects • significant eye irritation in animals and people exposed to 500 ppb (1 hour average, daily exposure)
1.0 – 10 ppm	<ul style="list-style-type: none"> • moderate to strong odour • more people may begin to experience mild adverse health effects (e.g. respiratory, eye irritation, irritability, headaches, nausea, etc.) • susceptible individuals may respond more severely
10 – 50 ppm	<ul style="list-style-type: none"> • strongly offensive odour • increased eye and respiratory irritation, nausea, vomiting, headache, dizziness, etc. • risk of irreversible eye injury in susceptible individuals • possible incapacitating or impaired ability to escape in susceptible individuals. • symptoms and effects more pronounced with longer exposure times
50 – 100 ppm	<ul style="list-style-type: none"> • intense offensive odour, progressing to loss of ability to detect odour (olfactory fatigue) • moderate to severe irritation in nose, throat, lungs (sore throat, cough, difficulty breathing) • headaches, nausea, vomiting, dizziness.

¹ Quality of Life Complaint Threshold is the lowest concentration at which an affected person will complain of an odour without manifesting overt symptoms (e.g., headache, nausea, tearing).

² Annoyance Threshold is the lowest concentration at which an affected person will complain of experiencing symptoms such as headache, nausea and tearing.

	<ul style="list-style-type: none"> • eye effects may be irreversible • potential for pulmonary edema as exposure time increases • lethality is possible for longer exposure times (e.g. 8-10 hours)
100 ppm and higher	<ul style="list-style-type: none"> • odour can not be detected due to olfactory fatigue • severe adverse effects such as: <ul style="list-style-type: none"> - headache, nausea, vomiting, dizziness, loss of balance, difficulty speaking - loss of consciousness (“knockdown”) - extreme eye irritation - lung irritation and damage, including lung edema, that may lead to permanent injury or death • effects more likely or severe as concentrations or exposure time increases • risk of unconsciousness and lethality after short exposure times, minutes to hours • death in average healthy adult due to respiratory paralysis in a minute or less at 750 ppm

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