

Appendix

Occupational Exposure Limits

Table A–1. U.S. guidelines and limits for occupational exposure to crystalline silica

Reference	Substance	Guideline or limit (mg/m ³)
NIOSH [1974]	Crystalline silica:* quartz, cristobalite, and tridymite as respirable dust	REL [†] = 0.05 (for up to a 10-hr workday during a 40-hr workweek)
OSHA [29 CFR 1910.1000–Table Z-3]	Respirable crystalline silica, quartz	PEL = 10 ÷ % quartz + 2 (8-hr TWA)
	Respirable crystalline silica, cristobalite	PEL = half of the value calculated from the formula for quartz
	Respirable crystalline silica, tridymite	PEL = half of the value calculated from the formula for quartz
MSHA [30 CFR 56, 57, 70, 71]	Respirable quartz in underground and surface metal and nonmetal mines	PEL = 10 ÷ % quartz + 2 (8-hr TWA)
	Respirable crystalline silica present in concentrations >5% in surface and underground coal mines	RDS [†] = 10 ÷ % quartz (8-hr TWA)
ACGIH [2001]	Respirable crystalline silica, quartz	TLV = 0.05 (8-hr TWA)
	Respirable crystalline silica, cristobalite	TLV = 0.05 (8-hr TWA)
	Respirable crystalline silica, tridymite	TLV = 0.05 (8-hr TWA)

Adapted from Hearl [1996].

* Identified by NIOSH as a potential occupational carcinogen [54 Fed Reg. 2521 (1989)].

[†] Abbreviations: REL = recommended exposure limit; PEL = permissible exposure limit;

RDS = respirable dust standard; TLV = threshold limit value; TWA = time-weighted average.