

## Supplement 1. Safe Handling of Hazardous Substances

### Appendix 4-5 Risk of Gases with Special Components

Group	Name	Chemical formula	Division of gas	Property			TLV TLV-TWA of ACGIH ('94 – '95) (ppm) (mg/m <sup>3</sup> )	
				Flam <sup>a</sup>	Tox <sup>b</sup>	Cor <sup>c</sup>		
Silicon compounds	Silane	SiH <sub>4</sub>	liquefied gas	○	○		5	7
	Dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub>	liquefied gas	○	○	○		
	Trichlorosilane	SiHCl <sub>3</sub>	-	○	○	○		
	Silicon tetrachloride	SiCl <sub>4</sub>	-		○	○		
	Silicon tetrafluoride	SiF <sub>4</sub>	compressed gas		○	○		
	Disilane	Si <sub>2</sub> H <sub>6</sub>	liquefied gas	○	○			
Arsenic compounds	Arsine	AsH <sub>3</sub>	liquefied gas	○	○			0.01 (as As)
	Arsenic(III) fluoride	AsF <sub>3</sub>	-		○	○		0.01 (as As)
	Arsenic(V) fluoride	AsF <sub>5</sub>	liquefied gas		○	○		0.01 (as As)
	Arsenic(III) chloride	AsCl <sub>3</sub>	-		○	○		0.01 (as As)
Phosphorus compounds	Phosphine	PH <sub>3</sub>	liquefied gas	○	○		0.3	0.4
	Phosphorus(III) fluoride	PF <sub>3</sub>	compressed gas		○	○		
	Phosphorus(V) fluoride	PF <sub>5</sub>	compressed gas		○	○		
	Phosphorus(III) chloride	PCl <sub>3</sub>	-		○	○	0.2	1.1
	Phosphorus(V) chloride	PCl <sub>5</sub>	-		○	○	0.1	0.9
	Phosphorus oxychloride	POCl <sub>3</sub>	-		○	○	0.1	0.6

Boron compounds	Diborane	B <sub>2</sub> H <sub>6</sub>	liquefied gas	○	○		0.1	0.1
	Boron trifluoride	BF <sub>3</sub>	compressed gas		○	○		
	Boron trichloride	BCl <sub>3</sub>	-		○	○		
	Boron tribromide	BBr <sub>3</sub>	-		○	○		
Metal hydrides	Hydrogen selenide	H <sub>2</sub> Se	liquefied gas	○	○		0.05 (as Se)	0.2 (as Se)
	Monogermane	GeH <sub>4</sub>	liquefied gas	○	○		0.2	0.6 (0.1 (as Te))
	Hydrogen telluride	H <sub>2</sub> Te	liquefied gas	○	○			
	Stibine	SbH <sub>3</sub>	liquefied gas	○	○		0.1	0.5
	Tin hydride	SnH <sub>4</sub>	-	○	○			
Halides	Nitrogen trifluoride	NF <sub>3</sub>	compressed gas		○		10	30
	Sulfur tetrafluoride	SF <sub>4</sub>	liquefied gas		○	○		
	Tungsten(VI) fluoride	WF <sub>6</sub>	-		○	○		1 (as W)
	Molybdenum (VI) fluoride	MoF <sub>6</sub>	-		○	○		5 (as Mo)
	Ge(IV) chloride	GeCl <sub>4</sub>	-		○	○		
	Tin(IV) chloride	SnCl <sub>4</sub>	-		○	○		2 (as Sn)
	Antimony(V) chloride	SbCl <sub>5</sub>	-		○	○		0.5 (as Sb)
	Tungsten(VI) chloride	WCl <sub>6</sub>	-		○	○		1 (as W)
	Molybdenum(V) chloride	MoCl <sub>5</sub>	-		○	○		5 (as Mo)
	Alkyl metals	Trialkylgallium	GaR <sub>3</sub>	-	○	○		
Trialkylindium		InR <sub>3</sub>	-	○	○			0.1 (as In)

<sup>a</sup> Flammable. <sup>b</sup> Toxic. <sup>c</sup> Corrosive.