

# Chemgard® Application Guide



## Chemgard Application Table

Compound	10 ppm	100 ppm	1000 ppm	1%	10%	100%	100% LEL	Current Min. Detection (ppm)	TLV (ppm)
Acetaldehyde			■					4	25
Acetic Acid		■*	■					1	10
Acetone	■*	■	■	■			■	3	500
Acetonitrile				■				40	40
Acetylene							■		
Acrylonitrile		■*	■					3	2
Ammonia			■	■				4	25
Acrolein			■					3	0.1
Benzene			■	■				10	0.5
Butane			■	■			■	3	800
1,3 Butadiene			■					3	2
1-Butyl Acetate			■	■	■			4	150
Carbon Dioxide <sup>§</sup>	■*	■	■	■	■			0.06	5000
Carbon Monoxide			■	■	■	■		4	25
Carbon Tetrachloride			■					3	5
Carbonyl Sulfide <sup>§</sup>			■					2	5
Chloroform <sup>§</sup>		■*	■	■				2	10
Chlorotrifluoroethylene			■					3	5
Cyclopentane			■					3	600
1,2 Dichloroethane			■					4	10
Diethyl Ether			■					3	400
Difluoromethane			■					3	
Dimethylacetamide			■*	■				2	10
Dimethylamine			■					4	5
Dimethyl Ether				■				4	
Dimethyl Ethyl Amine			■					4	
Dowtherm J			■					5	10
Ethane			■				■	3	
Ethanol <sup>§</sup>			■	■			■	5	1000
Ethanolamine				■				20	3
Ethyl Acetate			■					3	400
Ethyl Benzene			■*					5	100
Ethyl Chloroformate			■					4	
Ethylene		■*	■		■		■	2	
Ethylene Oxide			■	■	■			4	1
Formic Acid		■*						1	5
Halon 1211			■					3	
Halon 1301			■					3	
Halothane			■					3	50
Heptane		■*	■	■			■	1	400
Hexafluoropropylene				■				4	
Hexafluoro 1,3, Butadiene <sup>§</sup>		■*	■					0.2	
Hexane <sup>§</sup>		■*	■	■	■			1	60
Hexene			■	■	■			50	30
HFC 245FA			■					3	
HFE 347E			■					3	
HFE 7100			■					3	600
Isceon 89			■					3	
Isobutane			■	■			■	3	
Isobutylene			■					3	250
Isohexane			■					4	500
Isopar G			■					3	

■ Acceptable application

\* Not CE approved application. Other applications and ranges are possible—contact MSA.

‡ 20 - 50% Range available

§ Certified in accordance with UL/CSA 61010-1 only

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Compound	10 ppm	100 ppm	1000 ppm	1%	10%	100%	100% LEL	Current Min. Detection (ppm)	TLV (ppm)
Isopentane			■	■	■		■	4	600
Isopropanol			■	■			■	4	400
JP-8 (As Hexane)				■				4	
Methanol			■	■			■	4	200
MEK		■*	■		■			1	200
Methyl Chloride			■	■				20	50
Methyl Formate			■	■				4	100
Methane			■*	■	■	■	■	5	
Methyl Amyl Ketone			■					4	50
Methyl Bromide			■					4	1
Methyl Fluoride		■*	■					3	
Methyl Iodide			■					4	2
MIBK			■					4	50
Methyl Methacrylate			■					3	100
Methyl Morpholine		■*						1	
Methylene Chloride <sup>§</sup>		■	■	■				3	50
Methylene Fluoride			■					4	
Methyl N-Propyl Ketone			■					4	200
Mogas (As Hexane)			■					4	
Monomethylamine			■					4	5
Nitrogen Trifluoride		■*	■					0.4	10
Nitrous Oxide		■*	■					1	50
Octafluorobutane <sup>§</sup>			■					1	
Octafluoropropene		■*	■					0.4	
Pentane			■	■	■			3	600
Perchloroethylene		■*	■					1	25
Perfluorohexane			■					1	
PF 5050			■					3	
Phosgene	■*	■*						0.6	
PMVE			■	■				3	
Propanal			■					4	
2-Propanol			■	■			■	4	400
N-Propanol			■					3	200
Propane			■	■			■	3	2500
Prop.Glyc.Dimeth.Acetate			■					4	
Propylene Oxide			■					4	20
R1234YF			■	■			■	3	
Solkane 365/227			■	■			■	3	
Styrene			■*	■				6	20
Sulfur Hexafluoride <sup>§</sup>		■*	■				■	3	1000
Sulfuryl Fluoride		■*						3	5
Tetrahydrofuran			■					3	200
Tetrafluoroethylene			■					4	
Toluene			■	■				6	60
1,1,1 Trichloroethane			■	■				4	350
1,1,2 Trichloroethane			■					4	10
Trichloroethylene		■*	■	■				0.4	60
Triethylamine			■					4	1
Trifluoro Propene			■				■	4	50
Vinyl Acetate			■					4	10
Vinyl Chloride		■*	■					1	1
Vinyl Fluoride			■	■	■			3	1
O-Xylene			■					4	100
M-Xylene			■					4	100
P-Xylene			■					4	100
Xylenes			■					3	100

■ Acceptable application

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‡ 20 - 50% Range available

§ Certified in accordance with UL/CSA 61010-1 only

## Sensor Selectivity\*

The Chemgard Gas Monitor is factory-calibrated for your particular gas. The system is highly selective to gases in air; however, the system also responds to other gases (interferants). Please refer to this guide for typical cross-sensitivities. Actual cross-sensitivities vary from instrument to instrument. If it is not known whether the gas to be detected is an interferant gas, contact MSA Customer Service.

\*Typical cross-sensitivities not verified or investigated by UL or CSA.

### Cross-Sensitivity Data For Carbon Monoxide

Cylinder P/N **806734**, 100 ppm CO in Nitrogen  
Available as a span gas; see calibration procedure for details.

Gas	Concentration	CO Reading
<b>Carbon Dioxide</b>	1%	15
<b>Methane</b>	2.5%	0
<b>Pentane</b>	0.75%	90
<b>Propane</b>	2.0%	110
<b>Ammonia</b>	880 ppm	0
<b>Hydrogen Sulfide</b>	40 ppm	0
<b>Methanol</b>	1000 ppm	10
<b>Acetone</b>	1000 ppm	40
<b>Toluene</b>	1000 ppm	0
<b>R123</b>	100 ppm	0
<b>R11</b>	100 ppm	6

**Test Conditions:**

- Calibrated 0-1000 ppm CO in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Ethyl Alcohol

Cylinder P/N **804532**, 0.75% Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Ethyl Alcohol Reading
<b>R11</b>	100 ppm	337
<b>R22</b>	100 ppm	33
<b>R113</b>	100 ppm	150
<b>R12</b>	100 ppm	407
<b>R123</b>	100 ppm	21
<b>Ammonia</b>	50 ppm	10
<b>Methane</b>	1%	0
<b>Propane</b>	2%	185
<b>Methanol</b>	1060 ppm	487
<b>Acetone</b>	954 ppm	41

**Test Conditions:**

- Calibrated 0-1000 ppm Ethyl Alcohol in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Ethylene Oxide

Cylinder P/N **804870**, 100 ppm R-113 in Nitrogen  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	ETO Reading
<b>Methane</b>	2.5%	18
<b>R12</b>	100 ppm	59
<b>R22</b>	100 ppm	54
<b>R123</b>	100 ppm	267
<b>R124</b>	100 ppm	38
<b>R134a</b>	100 ppm	42
<b>Pentane</b>	0.75%	198
<b>Butane</b>	8%	109
<b>Iso-Butylene</b>	100 ppm	18

**Test Conditions:**

- Calibrated 0-1000 ppm Ethylene Oxide in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Hexane

Cylinder P/N **10014894**, 1000 ppm Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Hexane Reading
<b>Methane</b>	1000 ppm	211
<b>Carbon Dioxide</b>	2500 ppm	0
<b>Carbon Monoxide</b>	500 ppm	0
<b>Ethanol</b>	100 ppm	28
<b>Iso-Butylene</b>	100 ppm	46
<b>Nitrous Oxide</b>	100 ppm	0
<b>R11</b>	100 ppm	0
<b>R22</b>	100 ppm	5
<b>R123</b>	1000 ppm	20
<b>R134a</b>	100 ppm	17
<b>Acetone</b>	944 ppm	174
<b>Methanol</b>	1059 ppm	332

**Test Conditions:**

- Calibrated 0-1000 ppm Hexane in N<sub>2</sub>
- Temperature: 25° C

## Cross-Sensitivity Data For Cyclo-Pentane

Cylinder P/N **494450**, 100 ppm Isobutylene in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Cyclo-Pentane Reading
<b>Methane</b>	1000 ppm	250
<b>Carbon Dioxide</b>	2500 ppm	0
<b>Carbon Monoxide</b>	500 ppm	0
<b>Ethanol</b>	100 ppm	33
<b>Nitrous Oxide</b>	100 ppm	0
<b>R11</b>	100 ppm	0
<b>R22</b>	100 ppm	6
<b>R123</b>	1000 ppm	24
<b>R134a</b>	100 ppm	20
<b>Acetone</b>	944 ppm	206
<b>Methanol</b>	1059 ppm	394

### Test Conditions:

- Calibrated 0-1000 ppm Cyclo-Pentane in N<sub>2</sub>
- Temperature: 25° C

## Cross-Sensitivity Data For Toluene

Cylinder P/N **10014894**, 1000 ppm Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Toluene Reading
<b>R11</b>	100 ppm	4
<b>R12</b>	100 ppm	4
<b>R22</b>	100 ppm	14
<b>R113</b>	100 ppm	4
<b>R134a</b>	100 ppm	22
<b>Carbon Monoxide</b>	5000 ppm	5
<b>Nitrous Oxide</b>	100 ppm	3
<b>Ethanol</b>	50 ppm	52
<b>Ammonia</b>	50 ppm	3

### Test Conditions:

- Calibrated 0-1000 ppm Toluene in N<sub>2</sub>
- Temperature: 25° C

## Cross-Sensitivity Data For Methylene Chloride

Cylinder P/N **804532**, 0.75% Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Methylene Chloride Reading
<b>R11</b>	100 ppm	3
<b>R12</b>	100 ppm	2
<b>R22</b>	100 ppm	10
<b>R113</b>	100 ppm	5
<b>R134a</b>	100 ppm	2
<b>Iso-Butylene</b>	100 ppm	0
<b>Ethanol</b>	100 ppm	0
<b>Ammonia</b>	100 ppm	0
<b>R123</b>	100 ppm	10
<b>Methane</b>	1.25%	0

### Test Conditions:

- Calibrated 0-1000 ppm Methylene Chloride in N<sub>2</sub>
- Temperature: 25° C

## Cross-Sensitivity Data For Trichloroethylene

Cylinder P/N **804532**, 0.75% Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Trichloroethylene Reading
<b>R11</b>	100 ppm	17
<b>R12</b>	100 ppm	285
<b>R22</b>	100 ppm	0
<b>R113</b>	100 ppm	80
<b>R123</b>	100 ppm	1
<b>Nitrous Oxide</b>	100 ppm	0
<b>Iso-Butylene</b>	100 ppm	5
<b>Ammonia</b>	50 ppm	20
<b>Methane</b>	1.25%	0

### Test Conditions:

- Calibrated 0-1000 ppm Trichloroethylene in N<sub>2</sub>
- Temperature: 25° C

## Cross-Sensitivity Data For Xylenes

Cylinder P/N **494450**, 100 ppm Isobutylene in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Xylenes Reading
<b>R12</b>	100 ppm	0
<b>R22</b>	100 ppm	5
<b>R113</b>	100 ppm	0
<b>R123</b>	100 ppm	1
<b>R134a</b>	100 ppm	10
<b>Ammonia</b>	100 ppm	0
<b>Methane</b>	5000 ppm	750
<b>Nitrous Oxide</b>	100 ppm	0
<b>Carbon Monoxide</b>	60 ppm	1

### Test Conditions:

- Calibrated 0-1000 ppm Xylenes in N<sub>2</sub>
- Temperature: 25° C

## Cross-Sensitivity Data For Methanol

Cylinder P/N **804868**, 100 ppm R-22 in Nitrogen  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Methanol Reading
<b>Methane</b>	1.25%	0
<b>Propane</b>	0.6%	94
<b>Pentane</b>	1000 ppm	15
<b>Iso-Butylene</b>	100 ppm	3
<b>Nitrous Oxide</b>	100 ppm	0
<b>R11</b>	100 ppm	280
<b>R12</b>	100 ppm	185
<b>R123</b>	100 ppm	28
<b>R134a</b>	100 ppm	86

### Test Conditions:

- Calibrated 0-1000 ppm Methanol in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Ethane

Cylinder P/N **494450**, 100 ppm Iso-butylene in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Ethane Reading
R12	100 ppm	0
R22	100 ppm	6
R123	100 ppm	0
Carbon Monoxide	60 ppm	3
Hydrogen	0.6%	0
Nitrous Oxide	100 ppm	0
R113	100 ppm	0
R134a	100 ppm	11
R11	100 ppm	0

**Test Conditions:**

- Calibrated 0-1000 ppm Ethane in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Nitrous Oxide

Cylinder P/N **10014894**, 1000 ppm Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Nitrous Oxide Reading
R134a	100 ppm	0
R113	100 ppm	0
Iso-Butylene	100 ppm	0
Propane	0.60 %	9
R22	100 ppm	0
Carbon Dioxide	2.50 %	115
Pentane	1000 ppm	2
Methane	1.25 %	0
Carbon Monoxide	60 ppm	10
Butane	8 %	450

**Test Conditions:**

- Calibrated 0-1000 ppm Nitrous Oxide in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Acetone

Cylinder P/N **803499**, 100 ppm R11 in Nitrogen  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Acetone Reading
R12	100 ppm	615
R22	100 ppm	420
R123	100 ppm	465
Iso-Butylene	100 ppm	15
Carbon Monoxide	300 ppm	0
Hydrogen	0.6 %	0
Nitrous Oxide	100 ppm	20
Ammonia	50 ppm	35
Methyl Ethyl Ketone	140 ppm	85

**Test Conditions:**

- Calibrated 0-1000 ppm Acetone in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Perchloroethylene

Cylinder P/N **804532**, 0.75% Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Perchloroethylene Reading
Methane	1.25%	0
R11	100 ppm	15
R22	100 ppm	0
R113	100 ppm	75
Nitrous Oxide	100 ppm	0
R134a	100 ppm	2
Acetone	100 ppm	5

**Test Conditions:**

- Calibrated 0-1000 ppm Perchloroethylene in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Perfluoromethylvinyl Ether

Cylinder P/N **494450**, 100 ppm Iso-butylene in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Perfluoromethylvinyl Ether Reading
R142b	100 ppm	30
Isobutylene	100 ppm	0
Propane	0.6%	3
R23	100 ppm	4
Ethyl Acetate	1000 ppm	185
Pentane	1000 ppm	0
Methane	2.5%	42
R218	100 ppm	35
Butane	8%	15

**Test Conditions:**

- Calibrated 0-1000 ppm Perfluoromethylvinyl Ether in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Propylene Oxide

Cylinder P/N **494450**, 100 ppm Iso-butylene in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Propylene Oxide Reading
R12	100 ppm	820
R113	100 ppm	775
Propane	.6%	290
R22	100 ppm	245
Nitrous Oxide	100 ppm	0
Pentane	1000 ppm	95
Methane	1.25%	0
Hydrogen	0.8%	0
Propylene Oxide	100 ppm	100

**Test Conditions:**

- Calibrated 0-1000 ppm Propylene Oxide in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For N-Pentane

Cylinder P/N **10014894**, 1000 ppm Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	N-Pentane Reading
<b>R134a</b>	100 ppm	15
<b>R123</b>	1000 ppm	20
<b>Iso-Butylene</b>	100 ppm	40
<b>Nitrous Oxide</b>	100 ppm	0
<b>R22</b>	100 ppm	5
<b>Ethanol</b>	100 ppm	25
<b>Pentane</b>	1000 ppm	1000
<b>Methane</b>	1000 ppm	200
<b>R11</b>	100 ppm	0
<b>Carbon Dioxide</b>	2500 ppm	0
<b>Carbon Monoxide</b>	500 ppm	0

**Test Conditions:**

- Calibrated 0-1000 ppm N-Pentane in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Ethyl Ether

Cylinder P/N **804868**, 100 ppm R-22 in Nitrogen  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Ethyl Ether Reading
<b>Methane</b>	2.5%	46
<b>R11</b>	100 ppm	0
<b>R12</b>	100 ppm	141
<b>R123</b>	100 ppm	184
<b>R134a</b>	100 ppm	166
<b>R113</b>	100 ppm	121
<b>Iso-Butylene</b>	100 ppm	0

**Test Conditions:**

- Calibrated 0-1000 ppm Ethyl Ether in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Dimethylamine

Cylinder P/N **804868**, 100 ppm R-22 in Nitrogen  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Dimethylamine Reading
<b>Methane</b>	2.5 %	87
<b>R11</b>	100 ppm	2
<b>R12</b>	100 ppm	534
<b>R123</b>	100 ppm	590
<b>R134a</b>	100 ppm	701
<b>R113</b>	100 ppm	457
<b>Isobutylene</b>	100 ppm	0

**Test Conditions:**

- Calibrated 0-1000 ppm Dimethylamine in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For Nitrogen Trifluoride

Cylinder P/N **804532**, 0.75% Pentane in air  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	Nitrogen Trifluoride Reading
<b>Carbon Dioxide</b>	300 ppm	0
<b>R123</b>	100 ppm	1
<b>R134a</b>	100 ppm	2
<b>R11</b>	100 ppm	6
<b>R22</b>	100 ppm	1
<b>Propane</b>	0.6% ppm	25
<b>Methane</b>	2.5% ppm	1
<b>Pentane</b>	0.75% ppm	65
<b>Iso-Butylene</b>	100 ppm	4
<b>C5F8</b>	50 ppm	2
<b>Methyl Fluoride</b>	50 ppm	0
<b>C4F6</b>	50 ppm	4
<b>SF6</b>	50 ppm	120
<b>C4F8</b>	50 ppm	9

**Test Conditions:**

- Calibrated 0-1000 ppm Nitrogen Trifluoride in N<sub>2</sub>
- Temperature: 25° C

### Cross-Sensitivity Data For C4F6

Cylinder P/N **812784**, 30 ppm R123 in Nitrogen  
Available as a simulant span gas; see calibration procedure for details.

Gas	Concentration	C4F6 Reading
<b>C4F8</b>	50 ppm	40
<b>C5F8</b>	50 ppm	98
<b>Carbon Monoxide</b>	50 ppm	0
<b>R22</b>	50 ppm	3
<b>Methylene Chloride</b>	50 ppm	0
<b>Ammonia</b>	50 ppm	0
<b>Ethanol</b>	50 ppm	3
<b>IPA</b>	50 ppm	5
<b>Methyl Fluoride</b>	50 ppm	0
<b>Nitrous Oxide</b>	50 ppm	0
<b>SF6</b>	50 ppm	0
<b>Nitrogen Trifluoride</b>	50 ppm	0
<b>R32</b>	50 ppm	3

**Test Conditions:**

- Calibrated 0-1000 ppm C4F6 in N<sub>2</sub>
- Temperature: 25° C

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice.

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