NERO INDUSTRIES
Advanced Reliability

CHEMICAL DETECTION DEVICE

MARS FILTRATION AND DETECTION SYSTEMS

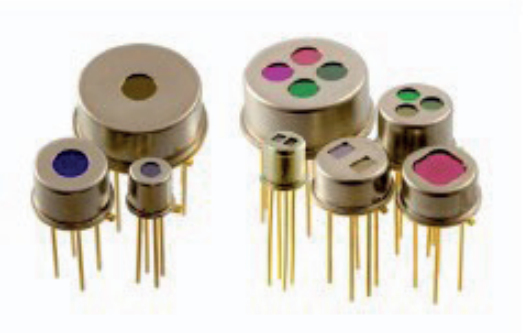
DS-2204202212001450-050

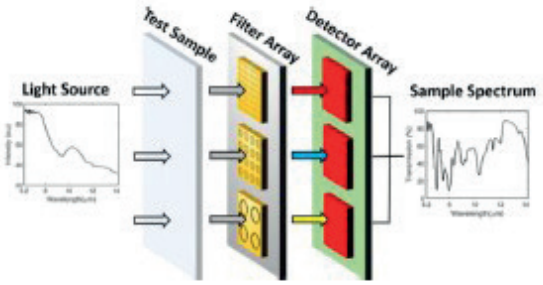
CHEMICAL DETECTION DEVICE

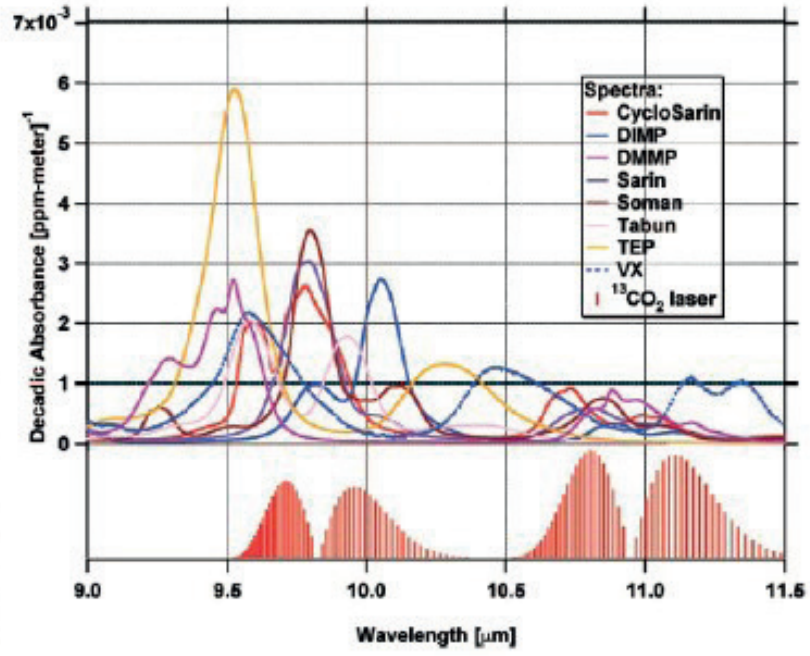
Optical spectroscopy, is a very powerful technic for toxic gas analysis. It enables measurements of light absorption, emission, scattering and rotation, significant structural data and chemical definition of these.

Each element of an optical filter series transmits the filtered light to the matching element of a photodetector series. It uses a Fourier transform infrared microscope (FTIR) to record the optical power transmitted from each filter.

This data is transferred to an RLS algorithm estimating incident spectrum with transfer spectrums of this filter and reconfigures transfer spectrum and infrared light source spectrum of our FTIR.







Chemical Warfare Agents and Toxic Industrial Gases, FTIR spectrum wavelength chart

CHEMICAL DETECTION DEVICE

An algorithm is used for matching the spectrums recorded in the library, including common chemical war agents and toxic industrial chemicals.

TICs (Toxic Industrial Chemicals) detector is designed to give alarm in cases of detection automatic control of NH3, AsH3, CS2, HCN, HNO3, HCN2, PCI3 and SO2 amongst Toxic Industrial Substances and in case threshold values of hazardous substance concentrations are exceeded.

CWA (Chemical War Agents) detector is designed to automatically control nerve gases (GA, GB, GD, GF, VX) and blister gases (HD ve L) amongst Chemical War Substances and warn the user in case threshold values of chemical agent concentrations are exceeded

Chemical Detector also gives warning for VOC**, VVOC*, LEL, Oxygen, sulphuredioxide and phosphate Gases.

Explanation	Boiling Point Range	Specific Sample Agents
Very volatile organic compounds (VVOC*)	<0 and 50-100	Propane, Butane, Chloromethane etc.
Volatile organic compounds (VOC*)	50 - 100 and 240-260	Formaldehyde, Limonene, Toleun,

Abbreviation	Gas Group
AC	Blood Agent Gases (Hydrogen Cyanide, Cyanogen Chloride)
H	Blister Gases (Mustard, Lewisite)
CG	Choking Gases (Phosgene, Chloropicrin)
G	Nerve Gases (Sarin, Soman, Tabun, VX)

OPTION 1

Alarm Level	Nerve Gases				Blister Gases	
	GA (mg/m3)	GB (mg/m3)	GD (mg/m3)	VX (mg/m3)	HD (mg/m3)	L (mg/m3)
1st Level	0,3	1	0,8	0,015	1	1
2nd Level	1	2,0	1,5	0,030	3	3
3rd Level	2	2,4	2,2	0,050	8	8
4th Level	4	2,6	3	0,070	10	10
5th Level	6	2,8	3,8	0,090	18	18
6th Level	8	3	5	0,100	35	35
7th Level	10	3,2	5,5	0,110	45	45

Toxic Industrial and Chemical Warfare Agents 7 different
It warns the user by giving an alarm at the level.

Product features:

• Nerve gas (G), blood poisoning gas (AC), caustic gas (H), suffocating gas (CG) detection
• It is determined from these gas groups with different colored lights on the instrument display panel.
The concentration of the gas in the group is also displayed with different light levels.
• High sensitivity, low power consumption, enabling on-site and real-time measurement providing
• Calibration-free use
• Pump failure and low battery warning indicators
• Instant data transfer to computer with RS-232 and/or CANBus J-1939 protocol

OPTION 2

#	Kimyasal Adı	CAS #	Grup	Faz*	PEL**** (OSHA)	REL***(NIOSH)	IDHL*****
1	GA TABUN	77-81-6	1	Sıvı	**	**	**
2	GB SARİN	107-44-8	1	Sıvı	**	**	**
3	GD SOMAN	96-64-0	1	Sıvı	**	**	**
4	GF SİKLOSARİN	329-99-7	1	Sıvı	**	**	**
5	VX	50782-69-91	1	Sıvı	**	**	**
6	CARBONYL SULFIDE	463-58-1	1	Gaz	**	TLV-TWA 5 ppm	**
7	METHYL MERCAPTAN	74-93-1	1	Gaz	C 10 ppm	0.5 ppm (1 mg/m³)	150 ppm
8	HD HARDAL Gazl	505-60-2	2	Sıvı	**	**	**
9	L LEVİZİT	541-25-3	2	Sıvı	**	**	**
10	HL HARDAL LEVEZİT MIX	UN:2810	2	Sıvı	**	**	**
11	BROMİNE	7726-95-6	2	Sıvı	TWA 0.1 ppm	TWA- 0.1ppm STEL-0.3ppm	3 ppm
12	ACRYLONITRILE	107-13-1	2	Sıvı	TWA 2 ppm C 10 ppm	Ca TWA 1 ppm C 10 ppm	85 ppm
13	ACETONE CYANOHYDRIN	75-86-5	2	Sıvı	**	C 1 ppm	**
14	ETHYLENEIMINE	151-56-4	2	Sıvı	**	**	100 ppm
15	CHLOROPICRIN PS	76-06-2	2	Sıvı	TWA 0.1 ppm	TWA 0.1 ppm	2 ppm
16	AC HİDROJEN SİYANÜR	74-90-8	3	Gaz	**	**	**
17	SA ARSİN	7784-42-1	3	Gaz	**	**	**
18	CK SİYANOJEN KLORİD	506-77-4	3	Gaz	**	**	**
19	CHLORINE	7782-50-5	3	Gaz	TWA- 0.1 ppm	C- 0.5ppm	10 ppm
20	ETHYLENE OXIDE	75-21-8	3	Gaz	TWA 1 ppm	TWA <0.1 ppm	800 ppm
21	FORMALDEHYDE	50-00-0	3	Gaz	TWA 0.75 ppm	TWA 0.016 ppm	20 ppm
22	HYDROGEN CHLORIDE	7647-01-0	3	Gaz	C 5 ppm	C 5 ppm	50 ppm
23	HYDROGEN FLUORIDE	7664-39-3	3	Gaz	TWA 3 ppm	TWA 3 ppm	30 ppm
24	AMMONIA	7664-41-7	3	Gaz	50 ppm	TWA 25 ppm	300 ppm
25	AC HYDROGEN CYANIDE	74-90-8	3	Gaz	TWA 10 ppm	ST 4.7 ppm	50 ppm
26	HYDROGEN SULFIDE	10294-34-53	3	Gaz	C 20 ppm; 50 ppm	C 10 ppm	100 ppm
27	NITRIC ACID	7697-37-2	3	Sıvı	TWA 2 ppm	TWA 2 ppm, ST 4 ppm	25 ppm
28	CARBON DISULFIDE	75-15-0	3	Sıvı	TWA 20 ppm C 30 ppm	TWA 1 ppm	500 ppm
29	SULPHUR DIOXIDE	7446-09-5	3	Gaz	TWA 5 ppm	TWA 2 ppm, ST 5 ppm	100 ppm
30	ALLYLAMINE	107-11-9	3	Sıvı	**	**	**
31	METHYL ISOCYANATE	624-83-9	3	Sıvı	TWA 0.02 ppm	TWA 0.02 ppm	3 ppm
32	N-BUTYL ISOCYANATE	111-36-4	3	Sıvı	**	**	**
33	NITROGEN OXIDE	10102-44-03	3	Gaz	C 5 ppm	STEL 1 ppm	20 ppm
34	PHOSPHINE	7803-51-2	3	Gaz	TWA 0.3 PPM	TWA 0.3 PPM - ST 1 PPM	50 PPM
35	CG FOSGEN-PHOSGENE	75-44-5	4	Gaz	TWA 0.1 ppm	TWA 0.1 ppm	2 ppm
36	CX FOSGEN OKSİM	1794-86-1	5	Sıvı	**	**	**
37	CHLOROSULFONIC ACID	7790-94-5	5	Sıvı	**	**	**
38	DIMETHYLSUFATE	77-78-1	5	Sıvı	TWA 1 ppm	TWA 0.1 ppm	7 ppm
39	METHANESULFONY CHLORIDE	124-63-0	5	Sıvı	**	**	**
40	DIPHENYLMETHANE4*DIISOCYANATE	101-68-8	5	Sıvı	P 0.02 ppm	TWA 0.005 ppm- C 0.020 ppm	75 mg/m³
41	ISOPROPYL ISOCYANATE	1795-48-8	5	Sıvı	**	**	**
42	TERT-BUTYL ISOCYANATE	1609-86-5	5	Sıvı	**	**	**
43	TETRAETHYL PYROPHOSPHATE	107-49-3	5	Sıvı	TWA 0.05 mg/m³	TWA 0.05 mg/m³	5 mg/m³
44	TDI TOLUENE DIISOCYANATE	26471-62-55	5	Sıvı	**	**	**
45	HN-1 NİTROJEN IPERİTBIS	538-07-8	6	Sıvı	**	**	**
46	ED ETİLDİKLOARSİN	598-14-1	6	Sıvı	**	**	**
47	1.2 DIMETHYLHYDRAZINE	540-73-8	6	Sıvı	**	**	**
48	TERT-OCTYK MERCAPTAN	111-88-6	6	Sıvı	**	**	**
49	ETHYL PHOSOHONOTHIONIC DICHLORIDE	993-43-1	6	Sıvı	**	**	**
50	DP DİFOSGEN	503-38-8	7	Sıvı	**	**	**
51	HN-2 NİTROJEN IPERİT	51-75-2	7	Sıvı	**	**	**
52	HN-3 NİTROJEN IPERİTTRIS	555-77-1	7	Sıvı	**	**	**
53	PD FENİLDİKLOROARSİN	696-28-6	7	Sıvı	**	**	**
54	MD METİLDİKLOARSİN	593-89-5	7	Sıvı	**	**	**
55	SULPHURIC ACID	7664-93-9	7	Sıvı	TWA 1 mg/m³	TWA 1 mg/m3	15 mg/m³
56	PHOSPHORUS TRICHLORIDE	7719-12-027	7	Sıvı	TWA 0.5 ppm	TWA 0.2 ppm	25 ppm
57	PHOSPHORUS PENTALLURIDE	7647-19-0	7	Gaz	**	**	**
58	SULFURLY CHLORIDE	7791-25-5	7	Sıvı	**	**	**
59	ALLYL İSOTHIOCYANATE	57-06-7	7	Sıvı	**	**	**
60	ARSENIC TRICHLORIDE	7784-34-1	7	Sıvı	TWA 0.010 mg/m³	0.002 mg/m³	5 mg/m³
61	CYANOGEN	460-19-5	7	Gaz	**	TWA 10 ppm	**
62	ETHYL PHOSPHONOUS DICHLORIDE	1498-40-4	7	Sıvı	**	**	**
63	PARATHION	56-38-2	7	Sıvı	TWA 0.1 mg/m³	TWA 0.2 mg/m³	10 mg/m³
64	PERCHLOROMETHYL MERCAPTAN	594-42-3	7	Sıvı	TWA 0.1 ppm	TWA 0.1 ppm	10 ppm
65	SULFURLY FLOURIDE	2699-79-8	7	Gaz	TWA 5 ppm	TWA 5 ppm - ST 10 ppm	200 ppm
66	METHLY HYDRAZINE	60-34-4	7	Sıvı	C 0.2 ppm	C 0.04 ppm	20 ppm

* Oda sıcaklığında kimyasalın faz durumu
** Data verilmemiş / Listede Yok / Değeri Sıfırdır
*** NIOSH-REL önerilen limit
**** OSHA-PEL izin verilen limit
***** IDHL Ani izin verilen limit

CHEMICAL DETECTION DEVICE

Specification	Value	Unit
Weight	12	kg
Dimensions (WidthxLengthxHeight)	332x450x645	mm
Operating Temperature	+15 - +65	°C
Power Requirement	24	VDC
	2	A
Communication	CAN J1939	RS485