



Portable Gas Analyzer

Model:pGas4810 (NIR) 便携式气体分析仪, 便携式激光气体分析仪,

## 工业红外气体分析仪

Ref: pGas4810\_IntC

资料: [http://www.big-dipper.com.cn/Products/Gas/Portable/pGas4810\\_IntC.pdf](http://www.big-dipper.com.cn/Products/Gas/Portable/pGas4810_IntC.pdf)

- 内置单片机微机
- 快速检测参数和温度值, 并进行温度校正和交叉校正
- 100 组数据记录, 可设置自动或手动记录
- RS232/485 双工接口, 可与微机联机采样
- 全部操作键盘设置, 窗口提示
- 动态范围>10000:1
- 长寿命, 高选择性, 不用维护
- 直接采样, 结构紧凑
- 工业设计和先进检测技术
- 快速响应
- 液体溶解气体分析支持

pGas4810 便携式激光气体分析仪, 是采用激光光度计原理设计的专业气体分析仪, 最低光学分辨率为 1nm, 最好可达 0.001nm。在一般情况下都可以达到从混合气中无误地分析所测试的成分。通过光度吸收分析识别气体种类和测试浓度范围。

pGas4810 配置光程<1 米。为了满足痕量分析的长光程仪器请参考 pGas4810 组态。

不同于流程分析仪的仅仅是没有自维护系统, 完全可以在实验室或短期研究时用做连续分析。不会影响仪器寿命。

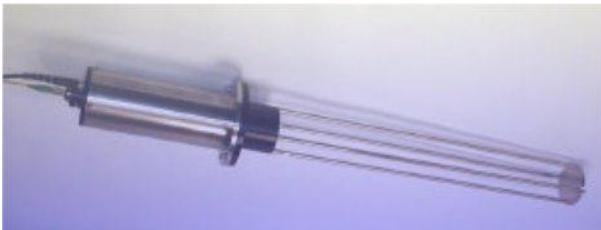
多参数或痕量分析, 请参考 pGas4810 分析仪。

### 设计特点

WF 配置系列仪器是作为一种气体的分析而设计的, 但是经过规定的标定和设置也可能用于其它气体(也就是表列的干扰气体)测试。但要实现多种气体同时分析, 必须配置 WMS 模块升级为激光光谱仪(2005 年投产)。

### 维护:

- 首先要保证传感器内部不能被粘污。测试可能在测试过程中聚合、凝结或黏附的样品时, 应该采用必要的滤除措施。
- 仪器提示时应该针对维护;
- 空气校准: 痕量分析仪或空气固有成分的分析仪应该用指定纯气校准。



- 样品气定期标定。一般标定周期 1-2 年。

### 应用:

- 气体快速分析
- 环境检测
- 污染源检测
- 工业工艺现场分析
- 科学研究实验室分析



## 测试仪功能:

- 现场 LCD 4×16 字符式轮换显示多项环境参数
- 越限报警,报警限可设置
- RS232/RS485 通信接口支持串行通信,可与计算机联机
- 数据记录 100 组。可阅读, 输出或打印
- 泵采样取样
- 用户也可以自行标定或校准

## pGas4000 技术指标:

- BD5 主机测试 ADC 分辨率: 1/60000;
- 光度计准确度:  $\pm 1-2\%$  读数(一般) 或  $2 \times$  分辨率,大者为准。
- 长期稳定性:  $-1 \sim 10\%$  /年 (一般)
- 分析器响应时间:  $< 10\text{ms}$
- 探头响应时间:  $< 1\text{min}$
- 仪器使用环境: 温度:  $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$ ; 湿度:  $10\% \sim 90\%R$  (无结露)
- 仪器保存环境: 温度:  $0^{\circ}\text{C} \sim 50^{\circ}\text{C}$ ; 湿度:  $10\% \sim 80\%R$  (无结露)
- 电化学探头直接采样: 温度:  $0-40^{\circ}\text{C}$ ; 压力: $< 1.1 \text{ kgf/cm}^2$
- 供电: 6V 充电蓄电池:
- 连续使用时间:  $> 24\text{Hr}$ /每次充电; 电池置放时间 1 周。
- 光源使用寿命:连续 5000-10000hr.

## 电气功能及性能:

请参考【BD4/BD5 智能变送器/测控器简介】

**机箱封装:** NEMA 1 /IP10; NEMA 4 / IP56

**机箱尺寸:** W240\*H132\* D240/360

**仪器质量保障:** 2 年

## 北京北斗星工业化学研究所

电话: 010-6257.9939-803; 技术支持: 010-8264.0226; 传真: 010-8264.0221;

业务部地址: 北京市海淀区中关村(中科院物理所 H 楼四层)

技术支持: email: [sun@big-dipper.com.cn](mailto:sun@big-dipper.com.cn) web: <http://www.big-dipper.com.cn/>

通信: 北京市 603 信箱 北斗星工化所 100190

## 系列分析仪器常见标准专业成套仪器

### 技术指标

Gas	LDL/1M	Min/Typical range	Pressure	Temperature	Cross Interference Information	Application
C2H2	10ppm	0-1000 ppm	10atm	400℃		
C2H2	10ppm	0-1000 ppm	10atm	400℃	O3(.2),	
C2H2/C2H6	10ppm	0-1000 ppm	10atm	400℃	O3(.2),	
C2H2	1ppm	0-100 ppm	10atm	400℃		
C2H4	1ppm	0-100 ppm	10atm	400℃	C3H6,SO2F2(),O3(0.1), H2S-, HO2-,	
C2H4	10ppm	0-1000 ppm	10atm	400℃	SO2F2(),O3(0.1), H2S-, HO2-,	
C2H4	0.1ppm	0-100 ppm	10atm	400℃		
C2H3Cl	0.1ppm	0-100 ppm	10atm	400℃		
C2H6/HC	0.05ppm	0-10 ppm/0-100% V	10atm	400℃	CH4(10),C2H6(2.5)	
C2H5OH	0.5ppm	0-500 ppm/0-100% V	10atm	400℃	CH4(10),C2H6(2.5)	
C2H6	1ppm	0-100 ppm/0-100% V	10atm	400℃	H2O,	
C2H6	1ppm	0-100 ppm/0-100% V	10atm	400℃	H2O,C2H2,	
C2H6	10ppm	0-1000 ppm/0-100% V	10atm	400℃	CFH(CF3) 2	
C2H6	0.4ppm	0-400ppm/0-100% V	10atm	400℃		
C2H6O	0.1ppm	0-100ppm	10atm	400℃	H2O, CO2,CH4-	
C2H3CHO	0.1ppm	0-100ppm	10atm	400℃	SO2	
C3H4	1ppm	0-10 0ppm/0-100% V	10atm	400℃		
C3H6	1ppm	0-10 0ppm/0-100% V	10atm	400℃	C2H4	
C3H8	1ppm	0-10 0ppm/0-100% V	10atm	400℃	HCL ,C2H2, NO,C3H8, NO2,	
C4H2	1ppm	0-10 0ppm/0-100% V	10atm	400℃		
C4H10	1ppm	0-10 0ppm/0-100% V	10atm	400℃	C2H2, O3(.2) ,C2H6	
C6H6	WMS1	1ppm	0-100ppm	10atm	400℃	CO2,NH3,SO2F2,CFH(CF3)2, HF(1.5), H2CO, O3(0.1),HOBr(0.25), H2S-, NH3(),CFH(CF3)2, C2H4,
C6H6	PM	1ppm	0-100ppm	10atm	400℃	C6H6, H2S, HCN,NO2, NH3,CH4, CHCl2F(HCFC-21)
C6H6	WMS01	1ppm	0-100ppm	10atm	400℃	
Aromatic	WMS01	1ppm	0-100ppm	10atm	400℃	NH3,CH4,Ar
Aromatic	WMS1	1ppm	0-100ppm	10atm	400℃	H2O,CO2,NH3,
Aromatic		1ppm	0-100ppm	10atm	400℃	

Aromatic		1ppm	0-100ppm	10atm	400°C	
ArOH		1ppm	0-100ppm	10atm	400°C	Aromatic
ArOH		1ppm	0-100ppm	10atm	400°C	H2S,CH4, CHCl2F(HCFC-21),N2O
CFH(CF3)2		1ppm	0-1000ppm	10atm	200°C	C2H6.N2O(-),
CHBr3						
CHCl2F/HCF						
C-21						
CHF3				10atm	200°C	
CH/HC/VOC	TM	0.0012ppm	0-20 ppm/0-100% V	10atm	400°C	CH4(1000), CH3CH3(100), HCl(500),OPL<6m; CH3SH(30), C2H4(50),CH3OH(30), HCl(20),H2O<10 <sup>4</sup> *HC O3(.1),NO2,
CH4	WMS1	<10ppm	0-10000 ppm	10atm	400°C	CH4, C2H2,CHF3, HCN, C4H2,O2,CHF3,H2,HF
CH4	WMS01	0.12ppm	0-120ppm	10atm	400°C	NH3,CO2(w),
CH4	WMS01	0.15ppm	0-180ppm	10atm	400°C	NH3,CO2(w),
CH4	WMS01	0.06ppm	0-60ppm	10atm	400°C	CH3OH,DMS,HCs,
CH4	WMS01	0.05ppm	0-50ppm	10atm	400°C	CH3OH,DMS,HCs,HF, CH3SH(1), CH3OH(2), NH3(3), CH4(25),CH3CH3(6), CO(1/3), C2H2(.2), C2H4(3), N2O(.1),NO2(+),H2CO(2), CS2(.2), CH4(15), C2H6(0.8) ,HCl
CH4/HC	TM	0.03ppm	0-6 ppm	10atm	400°C	Less interfered by HCL
CH3Br		10ppm	0-10000 ppm	10atm	400°C	C2H6,HCO,CH4,NO2,
CH3OH	WMS01	0.9ppm	0-900ppm	10atm	400°C	CH3OH(12),water(13), CH3SH(.2),
CH3OH	WMS01	2ppm	0-2000ppm	10atm	400°C	CH3OH(12),water(13), CH3SH(.2),
CH3OH	WMS2	9ppm	0-900ppm	10atm	400°C	CO, CO2, H2S,HCN,H2CO, CS2, C2H2, NH3
CH3OH	WMS1	1ppm	0-1000ppm	10atm	400°C	CH3OH(12),water(13), CH3SH(.2),
CH3OH	WMS01	0.1ppm	0.1-100ppm	10atm	400°C	CH3OH(12),water(13), CH3SH(.2),
CH3SH		0.01ppm	0-1000ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4
CH3SH		0.06ppm	0-1000ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4
CH3SH	WMS01	0.45ppm	0-450ppm	10atm	400°C	CH4, DMS, CH3OH,
CH3SH	WMS01	0.2ppm	0.1-100ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4,many
CH3SH	WMS01	0.45ppm	0-450ppm	10atm	400°C	NH3, CH4,CH3OH,HF,
CH3SH		5ppm	0-5000ppm	10atm	400°C	C2H6,CH3OH,CH4
CH3SH		0.9ppm	0-900ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4
CH3SH		0.9ppm	0-900ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4
CH3SH	WMS01	0.72ppm	0-750ppm	10atm	400°C	aromatic , CH4,NH3,CH3OH,

CH3SH		0.9ppm	0-900ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4	
CH3SH	WMS1	2ppm	0-2400ppm	10atm	400°C	CH4,NH3,	
CH3SH		2ppm	0-2000ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4	
CH3SH		18ppm	0-2% V	10atm	400°C	CO, CO2, H2S,HCN,H2CO, CS2, C2H2, NH3	
CH3SCH3		0.008ppm	1-1000ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4	
CH3SCH3		0.015ppm	1-1000ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4	
CH3SCH3		2ppm	1-1000ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4	
CH3SCH3	WMS01	0.4ppm	400ppm	10atm	400°C	HF,CH3SH, CH3OH	
CH3SCH3	WMS01	0.18ppm	180ppm	10atm	400°C	CH4, CH3SH, CH3OH	
CH3SCH3	WMS01	0.5ppm	1-500ppm	10atm	400°C	NH3, CH4, CH3SH, CH3OH,aromatic	
CH3SCH3	WMS1	0.8ppm	1-800ppm	10atm	400°C	NH3, CH4, CH3SH, CH3OH,	
CH3SSCH3			0.1-100ppm/0-10% V	10atm	400°C	C2H6,CH3OH,CH4	
Cl2	CWP	Cl2:80ppm SO2:10ppm O3:1ppm		10atm	200°C	O3,SO2,Cl2;	limited
O3	CWP	Cl2:80ppm SO2:10ppm O3:1ppm		10atm	200°C	O3,SO2,Cl2;	limited
ClO2		10ppm	0-10%,100%	10atm	200°C		
CO		0.002ppm	0-0.5/100ppm	10atm	400°C	CO(400), C2H2(1.7), CH3OH(.4), CH3SH/0.3, N2O(), HCN(.3), NH3(0.1), CO2(.1), C2H4(.4), N2O(.2), O3(.12), H2S(.007),	
CO	WMS2	20ppm	0-20%	10atm	400°C	CO, CO2, H2S,HCN,H2CO, CS2, C2H2, NH3	
CO				10atm	400°C	CO, CO2, H2S,HCN,H2CO, CS2, C2H2, NH3	1.185
CO		100ppm	0-1%	10atm	400°C	NO;	
CO	WMS1	1000ppm	0-20%	10atm	400°C	O3(.15),NO(),	804
CO2		0.001ppm	0-0.2 ppm, 0-100% V	10atm	400°C	CO2(800),CH3SH/0.4, CH3OH/0.5, NH3(1),H2O(10?), HCN(.2), H2S(4), N2O(1),	
CO2	WMS01	3ppm	0-3% V	10atm	400°C	H2S(), CO(),	2.005
CO2	WMS01	3ppm	0-3% V	10atm	400°C	H2S(), CO(),	2.015
CO2		10ppm	0-3000ppm,% V	10atm	400°C	HBr, H2S,CH3SCH3,NH3, HCHO,	1.9656
CO2		10ppm	0-3000ppm,% V	10atm	400°C	HBr, H2S,CH3SCH3,NH3, HCHO,	1.95599
CO2	WMS1	30ppm	0-30% V	10atm	400°C	CO2, H2S, CO, HCN,H2CO, CS2, C2H2,1.5797 NH3	
CO2	WMS1	30ppm	0-30% V	10atm	400°C	CO2, H2S, CO, HCN,H2CO, CS2, C2H2,1.571 NH3	
CO2	WMS1	1000ppm	0-20% V	10atm	400°C	COS,CH4, C4H2,O3(.15),	839.1

CO2	WMS1	1000ppm	0-20% V	10atm	400°C	COS, SO2F2, O3(.15), H2O(0.1), 829.
CO2	WMS1	1000ppm	0-20%	10atm	400°C	CO2,HI,C4H2, H2O(0.07),C2H2,N2O,H2, 820. 804 SO2F2(), O3(.15), O3(0.1), HOBr(0.25),
COS		0.003ppm	0-1000ppm/0-10% V	10atm	400°C	
COS		0.5ppm	0-1000ppm/0-10% V	10atm	400°C	
COS		3ppm	0-1000ppm/0-10% V	10atm	400°C	
COS		10ppm	0-1000ppm/0-10% V	10atm	400°C	
COS		10ppm	0-1000ppm/0-10% V	10atm	400°C	
CS2		0.9ppm	0-1000ppm/0-10% V	10atm	400°C	
HCN		0.2ppm	0-200	10atm	400°C	O3(.3),C2H2;
HCO		1ppm	0-1000ppm	10atm	400°C	H2O, CO2,CH4-
HCL		0.005ppm	0-5ppm,	10atm	400°C	
HCL	WMS01	0.5ppm	0-1000ppm,	10atm	400°C	
HCL	WMS01	0.5ppm	0-1000ppm,	10atm	400°C	
HCL	WMS1	0.07ppm	0-15/8000ppm,	10atm	400°C	COS ,N2O(),
HCL		0.7ppm	0-15/8000ppm,	10atm	400°C	
HCL		1.4ppm	0-15/8000ppm,	10atm	400°C	
HCL	WMS1	1.4ppm	0-15/8000ppm,	10atm	400°C	C2H2,NO2, NH3, C2H6,H2O
HF	WMS01	0.03ppm	0-5/100 ppm	10atm	400°C	NH3 ,H2O
HF	WMS01	0.02ppm	0-5/100 ppm	10atm	400°C	
HF	WMS01	2ppm	0-1000 ppm	10atm	400°C	
HF	WMS04	0.01ppm	0-5/1000 ppm	10atm	400°C	Thorlab
H2						NH3,NO2
H2				10atm	400°C	C3H4,CH4,CO2,H2O,COS, C2H2,C4H2, HCN,NH3, H2O2,O2
H2				10atm	400°C	C2H2, C4H2, HI,CO2
H2				10atm	400°C	COS, C2H4, C4H2
H2O		30ppm	0-100ppm,0-100% V	10atm	400°C	NO2+, O3(.3), NO2(33), HOBr(0.1), HO2(1),
H2O		50ppm	0-100ppm,0-100% V	10atm	400°C	C2H6O ,O3(.3), CO2,CH4-
H2O	WMS1	30 ppm	0-3% V,0-100% V	10atm	400°C	C4H2,N2O,CO2,HI,C4H2,C2H2,C4H2,H2
H2O	WMS1	15 ppm	0-1.5% V,0-100% V	10atm	400°C	CFH(CF3)2,N2O, H2S, C2H6,O3-,HF,
H2O	WMS1	3 ppm	0-3000ppm,0-100% V	10atm	400°C	CH4,H2O2,O3-,
H2O		0.12 ppm	0-120ppm,0-100% V	10atm	400°C	
H2O	WMS01	0.09 ppm	0-120ppm,0-100% V	10atm	400°C	water(25),CH3OH(1), CH3SH(.2), HCN(2), HCl(2),H2CO(2),NO<181>
H2S		0.1ppm	0-100 ppm,0-30% V	10atm	400°C	water(.1);
H2S	WMS01	1ppm	0-1000 ppm,0-30% V	10atm	400°C	H2S, CO, CO2, HCN,H2CO, CS2, C2H2,1.9196,

H2S	WMS2	4ppm	0-3000 ppm,0-30% V	10atm	400°C	NH3 H2S, CO, CO2, HCN,H2CO, CS2, C2H2,1.577, NH3	
H2CO		0.15ppm	0-30ppm/0-10% V	10atm	400°C	HCl(300),CH3OH(5), CH3SH(4?), NH3(0.2),CH3(3),CH3CH3(10), CH4(15), HCN(7-60?), C2H2(.5), H2S(0.3), N2O(3), NO2(.1), H2CO(60), CS2(1.5), H2CO(13), C2H4(12), NH3(3), CH3OH(1), CH3SH(.1), N2O(.3), CS2(.25),	
H2CO		0.15ppm	0-30ppm/0-10% V	10atm	400°C		
HNO3		0.06ppm	0-60 ppm	10atm	400°C		
HNO3		1.2ppm	0-120 ppm	10atm	400°C		
NH3	WMS01	0.06ppm	0-60ppm	10atm	400°C	NH3(50), CH3OH(1), CH3SH(.2),H2CO(2), CS2(.25),	
NH3	WMS01	0.048ppm	0-50ppm	10atm	400°C	NH3(50), CO2(5), H2O	
NH3	WMS1	1.8ppm	0-2000ppm	10atm	400°C	NH3(50), DMS,CH3SH,CH4	
NH3	WMS1	0.72ppm	0-1000ppm	10atm	400°C	NH3(50), CO2, CH4,C2H4	
NH3	WMS1	0.3ppm	0-300ppm	10atm	400°C	HCN,CO2,H2CO,CH3SH,CO,H2S,	CO2 <3%
NH3	WMS01	0.09ppm	0-100ppm	10atm	400°C		
NH3	WMS1	0.2ppm	0-200ppm	10atm	400°C		
NH3	WMS1	1ppm	0-1000ppm	10atm	400°C	O3(.3), NO2(33), HOBr(0.1), HO2(0.1), NH3()	
N2			0-100%			CH4,NH3	
N2O		10ppm	0-1000ppm,	10atm	400°C	CH4,NH3	
N2O		2.2ppm	0-1000ppm,	10atm	400°C		. 9918407
N2O		2.2ppm	0-1000ppm,	10atm	400°C		.9836385
N2O	WMS1	2.2ppm	0-1000ppm,	10atm	400°C	CH4,NH3,	.8810915
N2O	WMS1	10ppm	0-1000ppm,	10atm	400°C	NH3,HF, CFH(CF3)2,C2H4,H2,	. 9043590
N2O	WMS1	10ppm	0-1000ppm,	10atm	400°C	H2O,	. 8241044
NO		10ppm	0-1%	10atm	400°C	NO(350),SO2(250),	
NO	WMS01	5ppm	0-1000ppm	10atm	400°C		
NO	WMS01	10ppm	0-1000ppm,	10atm	400°C		
NO	WMS1	1ppm	0-1000ppm,	10atm	400°C	C2H2, CO,H2O	
NO2	WMS01	10ppb	0-1ppm,	10atm	400°C		
NO2		10ppb	0-1ppm,	10atm	400°C		
NO2		10ppb	0-1ppm,	10atm	400°C		
NO2		10ppb	0-1ppm,	10atm	400°C		
NO2		10ppb	0-1ppm,	10atm	400°C		

NO2		10ppb	0-1ppm,	10atm	400℃	
NO2	WMS04	10ppb	0-1ppm,	10atm	400℃	O2,
NO2	WMS1	0.1ppm	0-100ppm,	10atm	400℃	
NO2		10ppb	0-1ppm,	10atm	400℃	
NO2	WMS30	10ppb	0-1ppm,	10atm	400℃	
NO2		10ppb	0-1ppm,	10atm	400℃	
O2		100ppm	0-30/100% V	10atm	400℃	
O2		100ppm	0-30/100% V	10atm	400℃	
O2	WMS01	100ppm	0-30/100% V	10atm	400℃	
O2	WMS1	100ppm	0-30/100% V	10atm	400℃	NO2
O2	WMS01	100ppm	0-30/100% V	10atm	400℃	
O2	WMS1	100ppm	0-30/100% V	10atm	400℃	NO2
O3		4.5ppm	0-5000ppm	10atm	400℃	H2Ovw
Ar-OH		1ppm	0-500ppm	10atm	200℃	CH3, protein, ArNH2
Ar-OH		1ppm	0-500ppm	10atm	200℃	Aromatic, CH2, ROH, sucrose, starch
SO2	WMS01	0.002ppm	0-1ppm	10atm	400℃	
SO2	WMS01	0.09ppm	0-1ppm	10atm	400℃	
SO2	PM	0.001ppm	0-1ppm	10atm	400℃	CH3SH(8), CH3OH/2.5, NH3(0.5), CH4(3), HCN(.3-3), C2H2(1), H2S(.3), N2O(2?), H2CO(50),
SO2	PM	0.01ppm	0-10ppm	10atm	400℃	C2H3CHO, NO2, O3
SO2	PM	0.01ppm	0-10ppm	10atm	400℃	NO2, O3

\*The range data is with 1 m optical path cell, unless otherwise specified with OL.

\*未列气体分析系统可以订货, 例如Acetylene (C<sub>2</sub>H<sub>2</sub>), Allene (CH<sub>2</sub>CCH<sub>2</sub>), Ammonia (NH<sub>3</sub>), Butadiene (C<sub>4</sub>H<sub>2</sub>), Butene (CH<sub>2</sub>CHCH<sub>2</sub>CH<sub>3</sub>), Carbon dioxide (CO<sub>2</sub>), Carbon disulfide (CS<sub>2</sub>), Carbon monoxide (CO), Carbon tetrachloride (CCl<sub>4</sub>), Carbonyl fluoride (COF<sub>2</sub>), Carbonyl sulfide (COS), Chlorine nitrate (ClONO<sub>2</sub>), Chlorine oxide (ClO), Chlorosulfonyl isocyanate (CSI) (ClSO<sub>2</sub>NCO), Cyanogen (C<sub>2</sub>N<sub>2</sub>), Cyclopropane (C<sub>3</sub>H<sub>6</sub>), Dimethyl sulfide (DMS) (H<sub>3</sub>CSCCH<sub>3</sub>), Dimethyl sulfoxide (DMSO) (H<sub>3</sub>CSOCH<sub>3</sub>), Ethane (CH<sub>3</sub>CH<sub>3</sub>), Ethylene (C<sub>2</sub>H<sub>4</sub>), Formaldehyde (H<sub>2</sub>CO), Formic acid (HCO<sub>2</sub>H), Hydrazine (N<sub>2</sub>H<sub>4</sub>), Hydrogen (H<sub>2</sub>), Hydrogen bromide (HBr), Hydrogen chloride (HCl), Hydrogen cyanide (HCN), Hydrogen fluoride (HF), Hydrogen iodide (HI), Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), Hydrogen sulfide (H<sub>2</sub>S), Hydroperoxy radical (HO<sub>2</sub>), Hypobromous acid (HOBr), Hypochlorous acid (HOCl), Isobutene ((CH<sub>3</sub>)<sub>2</sub>CCH<sub>2</sub>), Methane (CH<sub>4</sub>), Methanesulfonyl chloride (CH<sub>3</sub>SO<sub>2</sub>Cl), Methanol (CH<sub>3</sub>OH), Methylamine (CH<sub>3</sub>NH<sub>2</sub>), Methyl chloride (CH<sub>3</sub>Cl), Methyl fluoride (CH<sub>3</sub>F), Methyl mercaptan (CH<sub>3</sub>SH), Nitric acid (HNO<sub>3</sub>), Nitric oxide (NO), Nitrogen (N<sub>2</sub>), Nitrogen dioxide (NO<sub>2</sub>), Nitrogen oxide cation (NO<sup>+</sup>), Nitrous oxide (N<sub>2</sub>O), Oxygen (O), Oxygen (O<sub>2</sub>), Ozone (O<sub>3</sub>), Phosphine (PH<sub>3</sub>), Propane (C<sub>3</sub>H<sub>8</sub>), Propylene (C<sub>3</sub>H<sub>6</sub>), Propyne (CH<sub>3</sub>C<sub>2</sub>H), Sulfur dioxide (SO<sub>2</sub>), Sulfur hexafluoride (SF<sub>6</sub>), Sulfuryl chloride (SO<sub>2</sub>Cl<sub>2</sub>), Sulfuryl fluoride (SO<sub>2</sub>F<sub>2</sub>), Thiophosphoryl chloride (SPCl<sub>3</sub>), Water (H<sub>2</sub>O)

## 北京北斗星工业化学研究所

电话: 010-6257.9939-803; 技术支持: 010-8264.0226; 传真: 010-8264.0221;

业务部地址: 北京市海淀区中关村(中科院物理所 H 楼四层)

技术支持: email: [sun@big-dipper.com.cn](mailto:sun@big-dipper.com.cn) web: <http://www.big-dipper.com.cn/>

通信: 北京市 603 信箱 北斗星化工所 100190