



nemototech

CHARACTERISATION DATA

NP-ANS CATALYTIC PELLISTOR GAS SENSOR, OPTIMISED FOR THE DETECTION OF AMMONIA

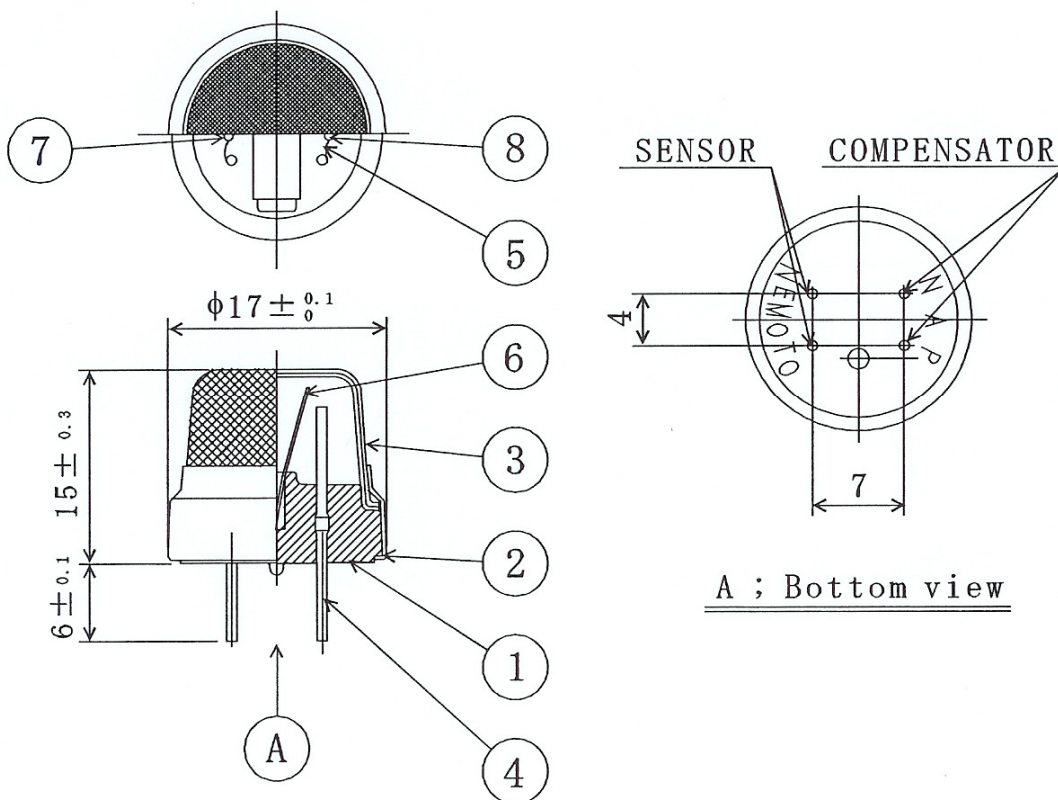


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Introduction

The Nemoto NP-ANS is a catalytic (pellistor) type flammable gas sensor supplied as a matched pair of elements mounted on a single header and protected by a metal can and mesh. Designed to give Industrial standard performance at low cost, the NP-ANS is optimised for the detection of **ammonia** in air in range 0-50% LEL but is stable and sensitive enough to be used for ranges as low as 0-5,000ppm, with alarm levels as low as 2,000ppm without false alarms, provided good quality circuitry is employed.

Intended as a sensing platform for use in fixed flammable gas detection systems, the NP-ANS exhibits excellent long term zero and sensitivity stability. The device is electrically compatible with a wide range of commercially available Gas Detection Systems and remote flammable gas detection heads. The highly automated manufacturing procedure employed by Nemoto results in a repeatable reliable sensor which, unlike similar devices, requires no trimming resistor to enable the detector to be matched with a compensator.

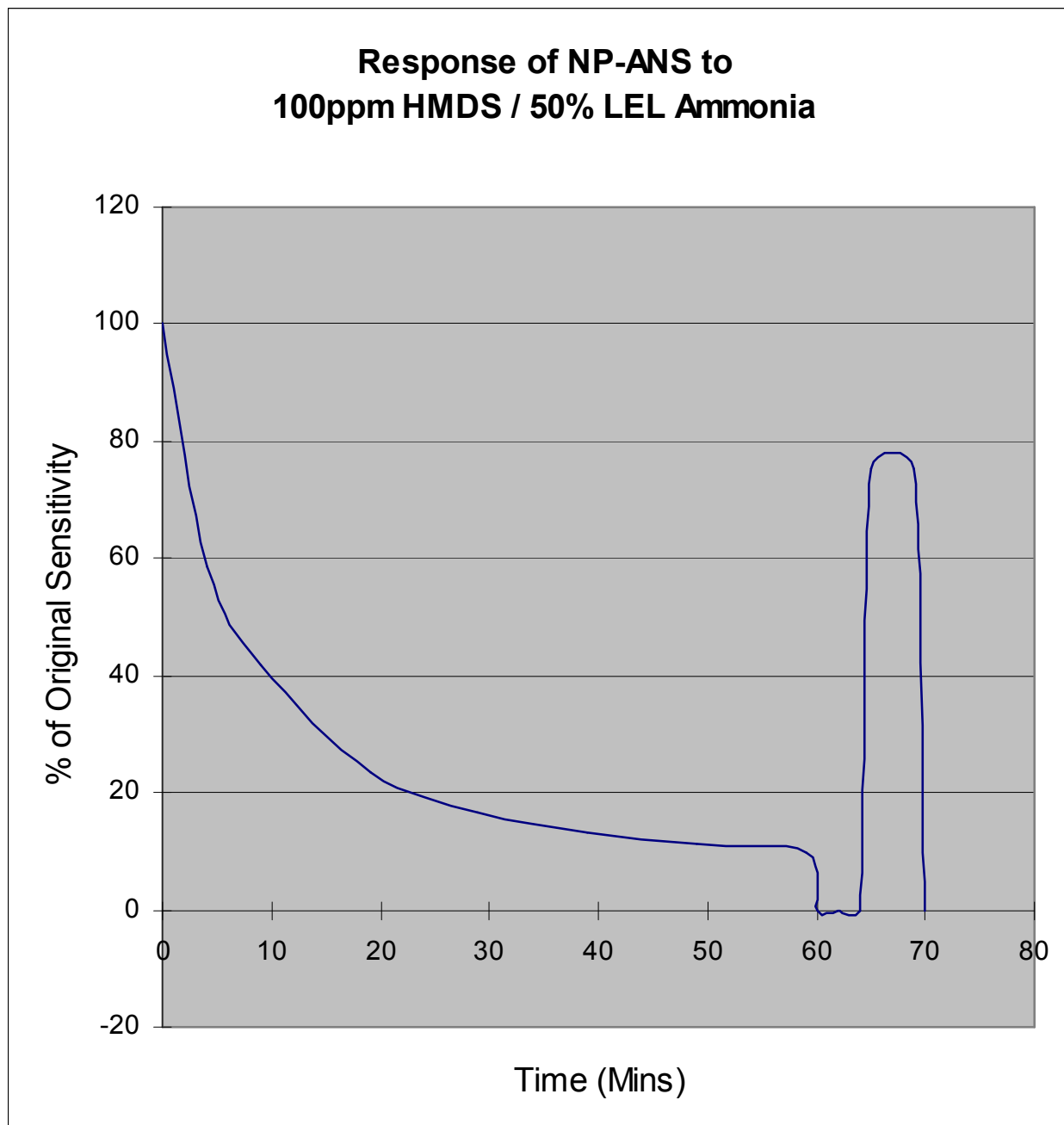


- 1) Mount Base, PM-EE Polymer
- 3) Mesh Enclosure (SS316)
- 5) Filament Coil (Pure Platinum)
- 7) Detecting Element

- 2) Metal skirt (C2680, Nickel plated)
- 4) Pin (Pure Nickel)
- 6) Partition (SS304 CSP)
- 8) Compensator Element

This characterisation document does not constitute a specification but is intended as a guide, informing the instrument designer of the performance characteristics of the sensor which were observed by Nemoto Environmental Technology's Engineers.

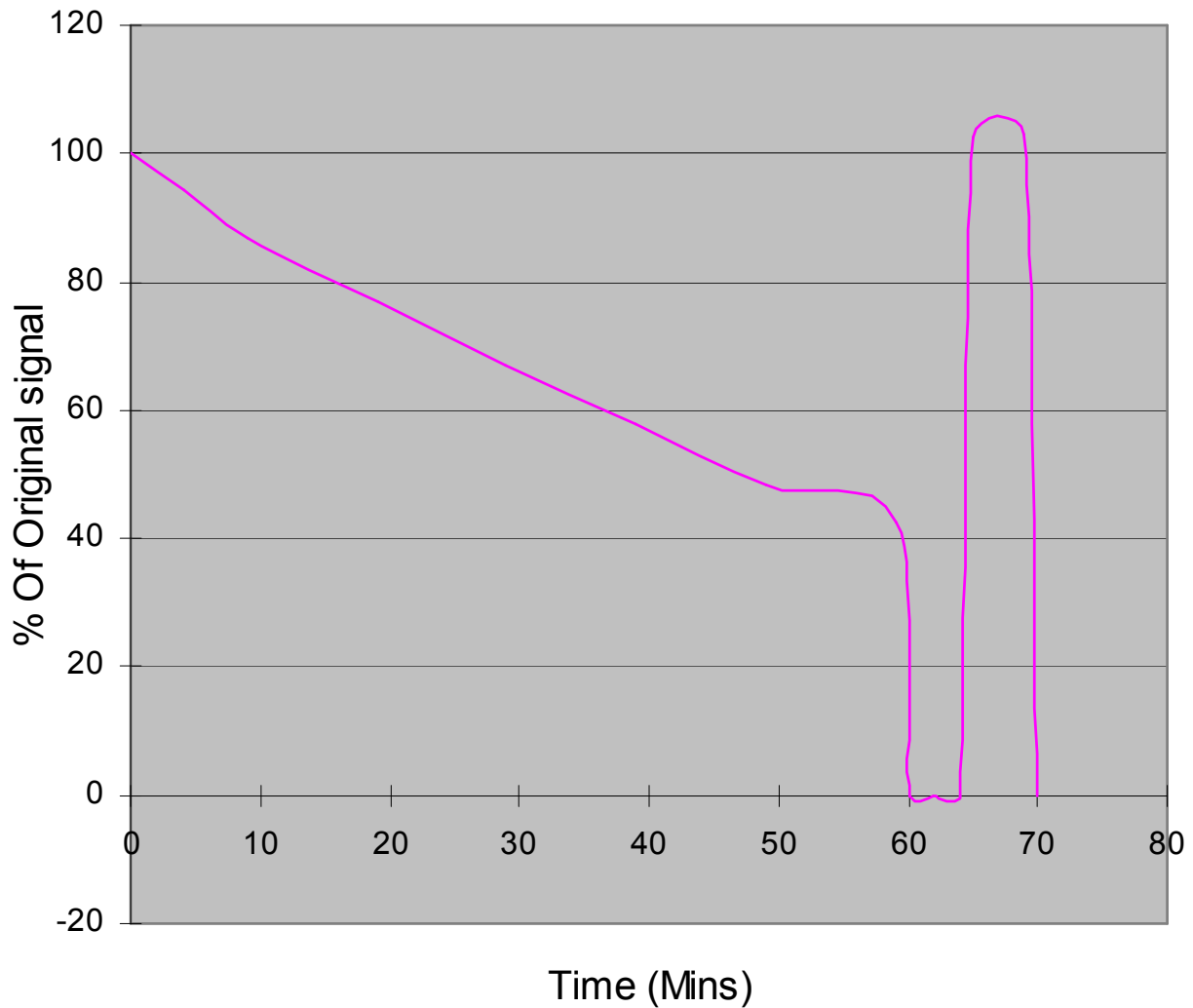
It should be read in conjunction with Technical Information Sheet ds-npans which include the full technical specifications for the NP-ANS Pellistor Gas Sensor.



NOTE: These test results also illustrate this sensor's ability to recover from the effects of Silicone inhibition/poisoning. The sensor was removed from the poisoning gas stream for 5 minutes. The sensor was then exposed to a clean test gas at 50% LEL to demonstrate that the sensor can partly recover from the effects of silicone poisoning



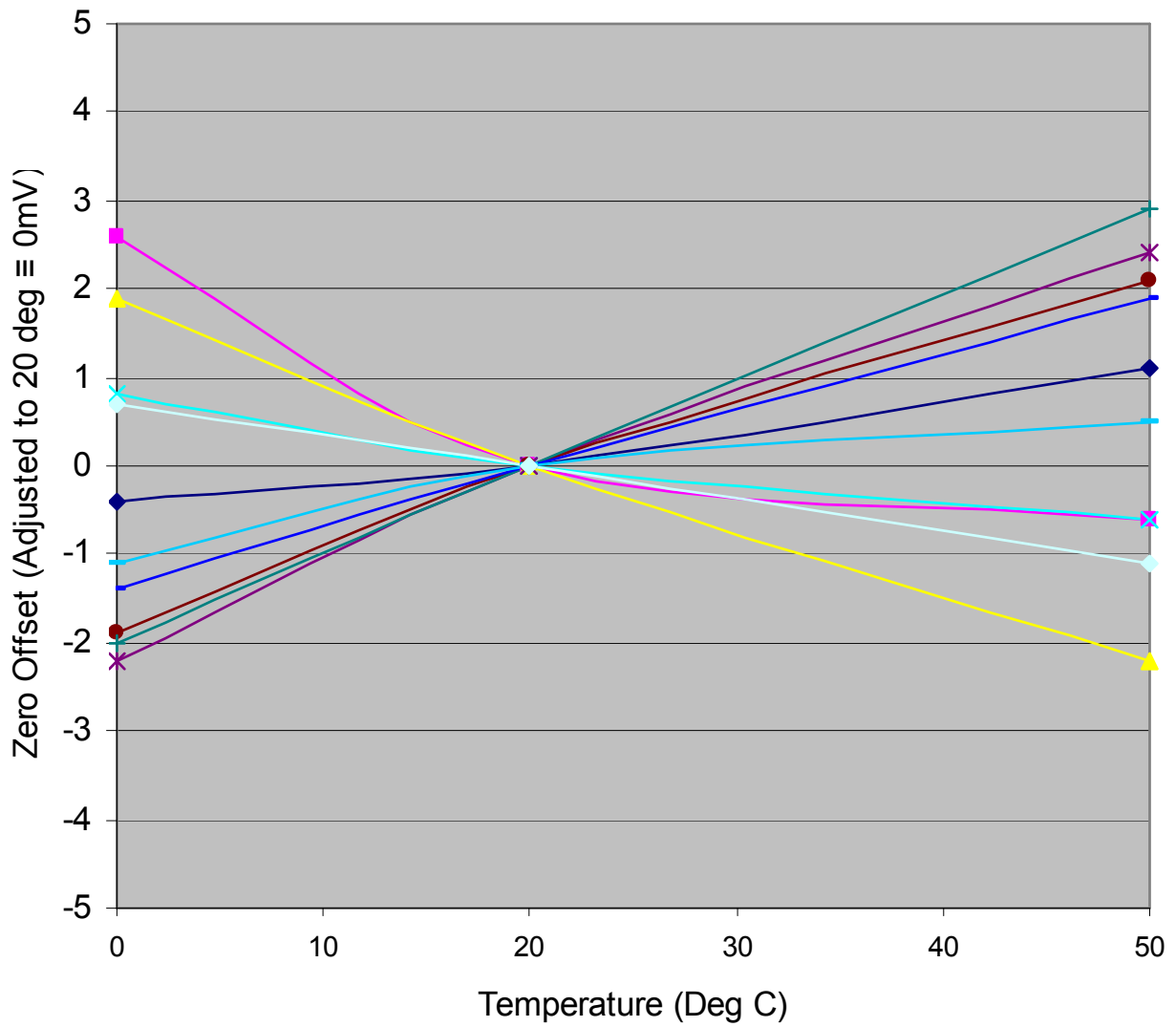
Response of NP-ANS to 25ppm H₂S / 50% LEL Ammonia



These test results illustrate the effect of H₂S exposure on the sensor and its ability to recover from the effects of H₂S inhibition/poisoning. The sensor was removed from the H₂S gas stream for 5 minutes, The sensor was then exposed to a clean test gas at 50% LEL to demonstrate that the inhibiting effect of H₂S does not result in a permanent reduction in signal.

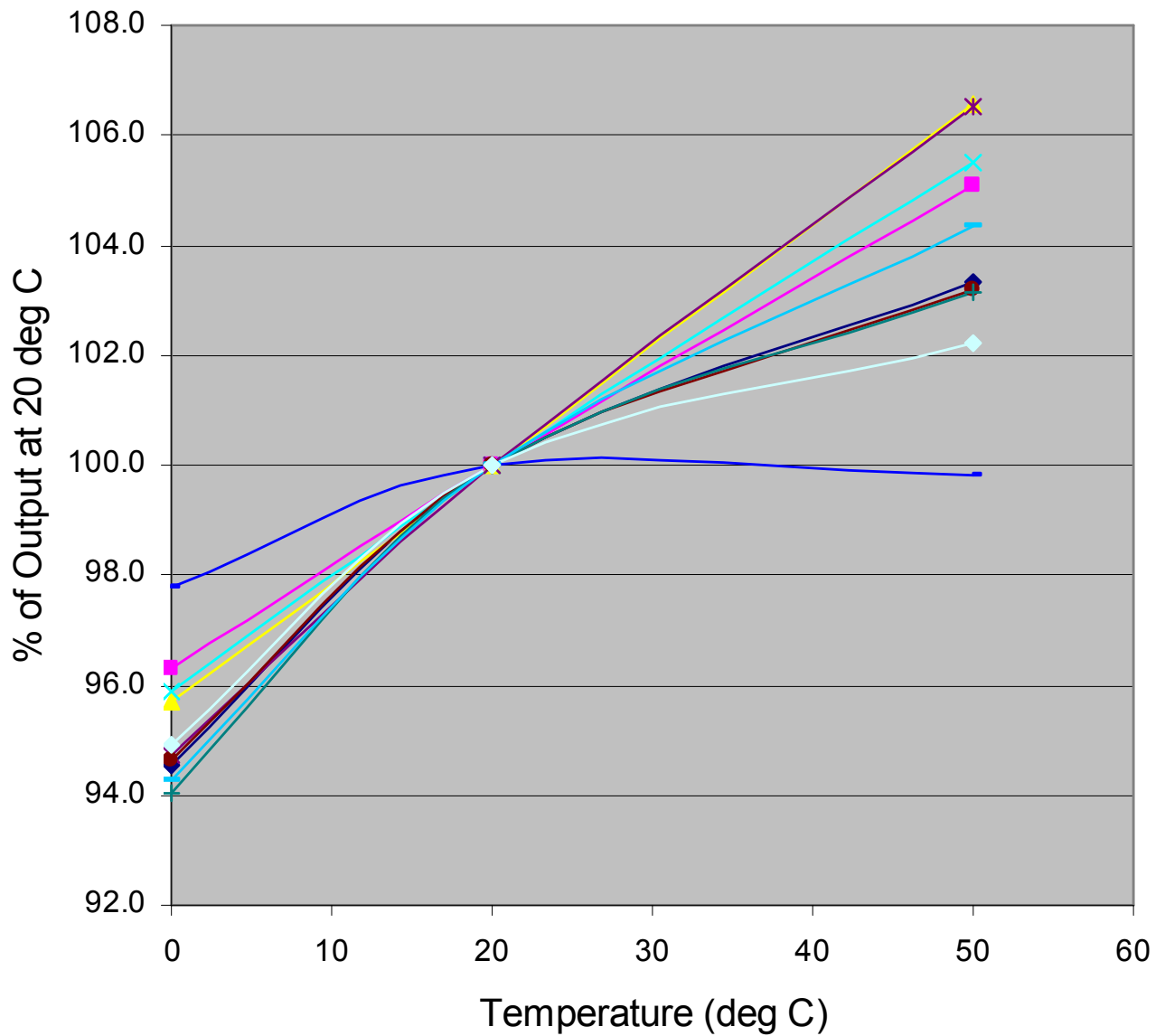


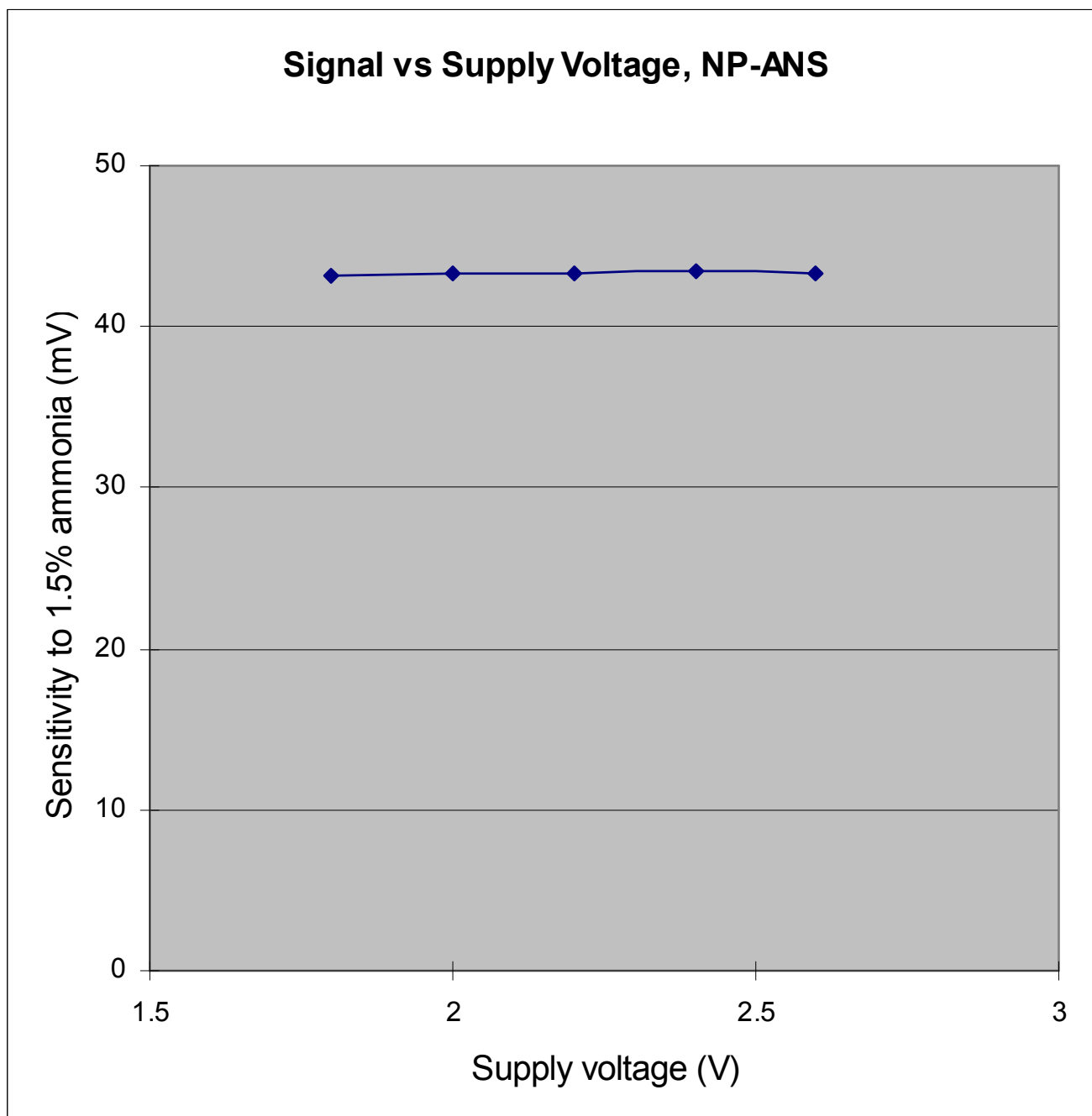
Zero vs temperature Performance, NP-ANS (1mV \equiv 300ppm NH3)



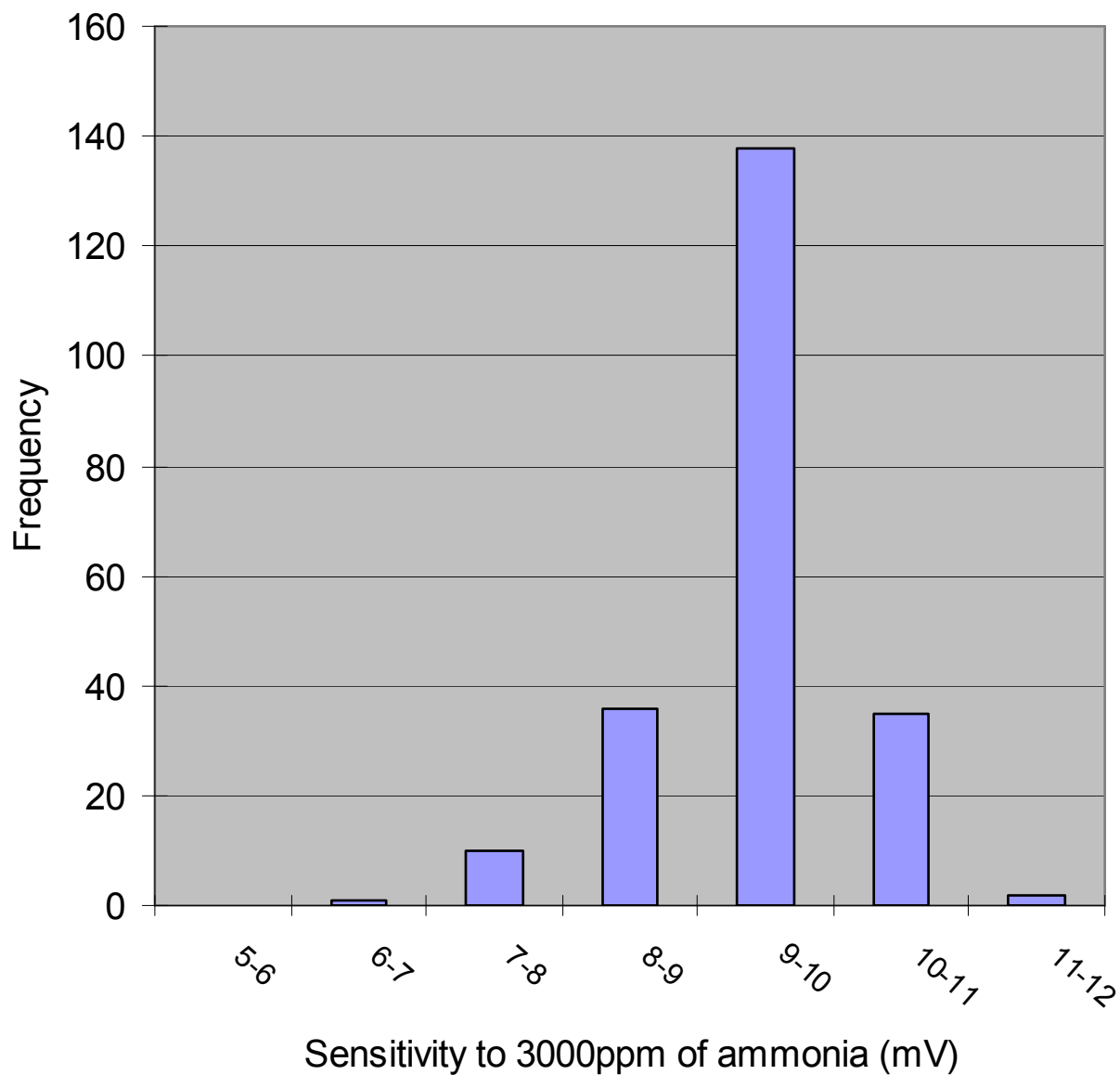


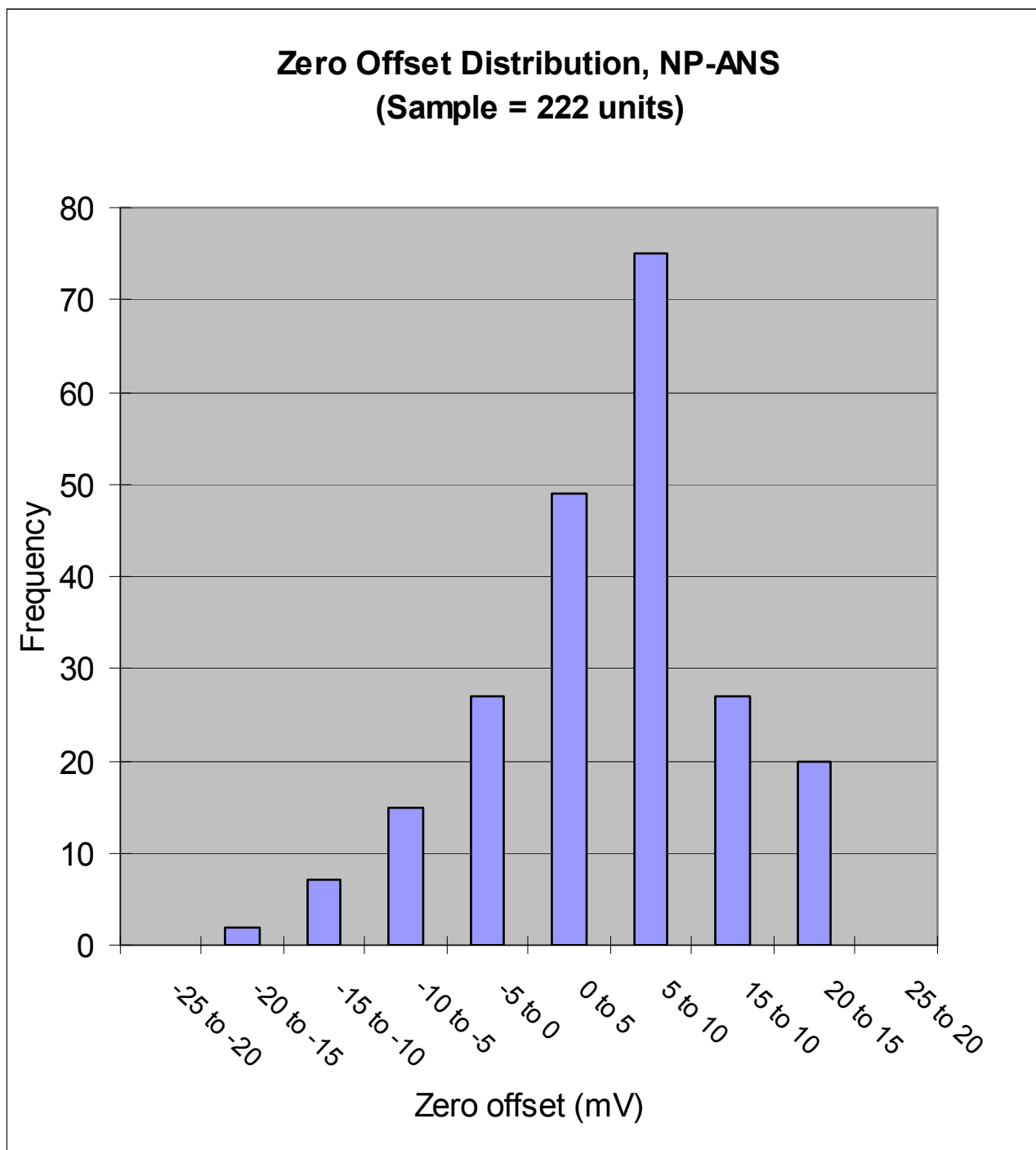
Span vs Temperature response, NP-ANS





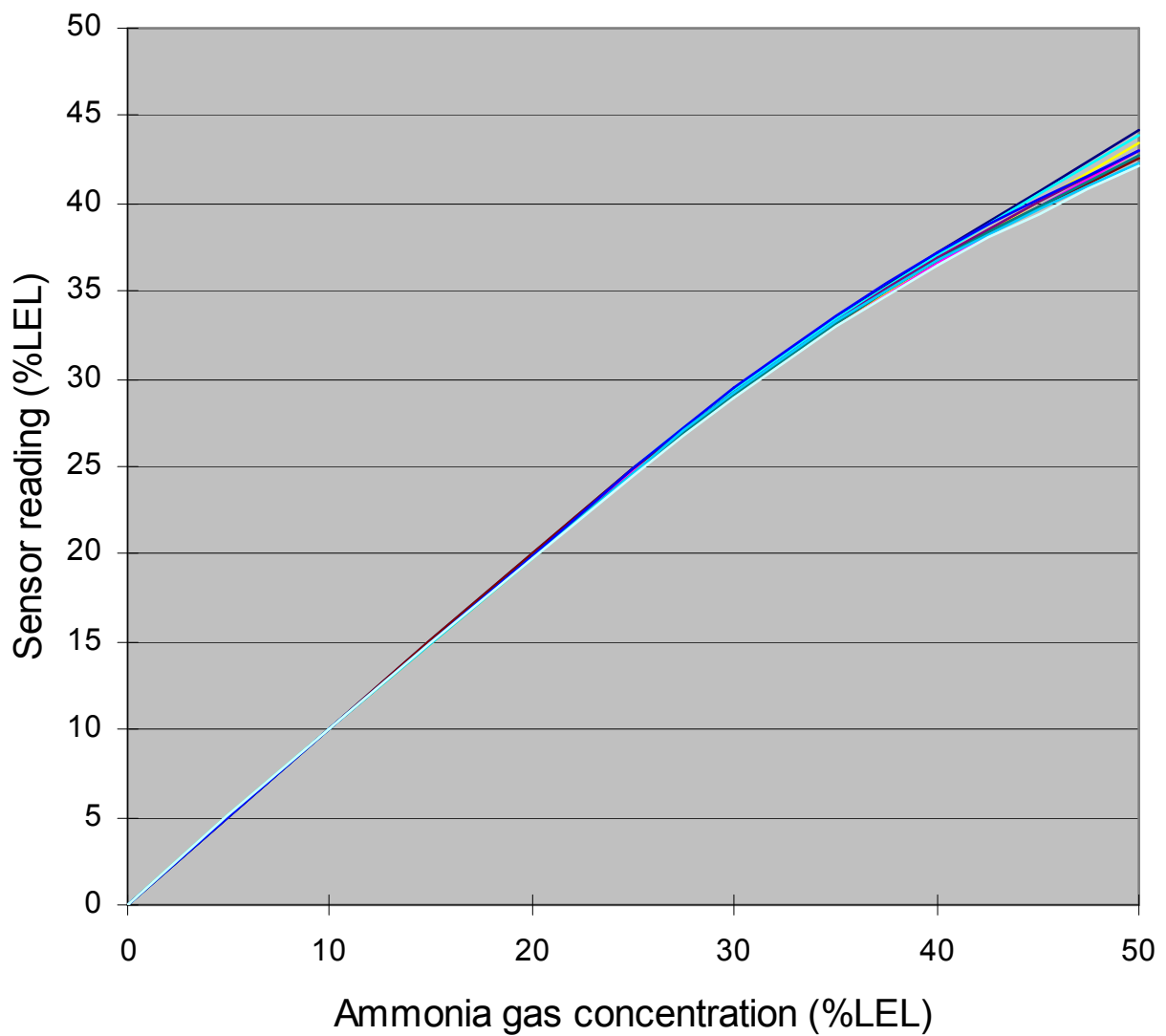
Sensitivity distribution, NP-ANS (Sample = 222 units)





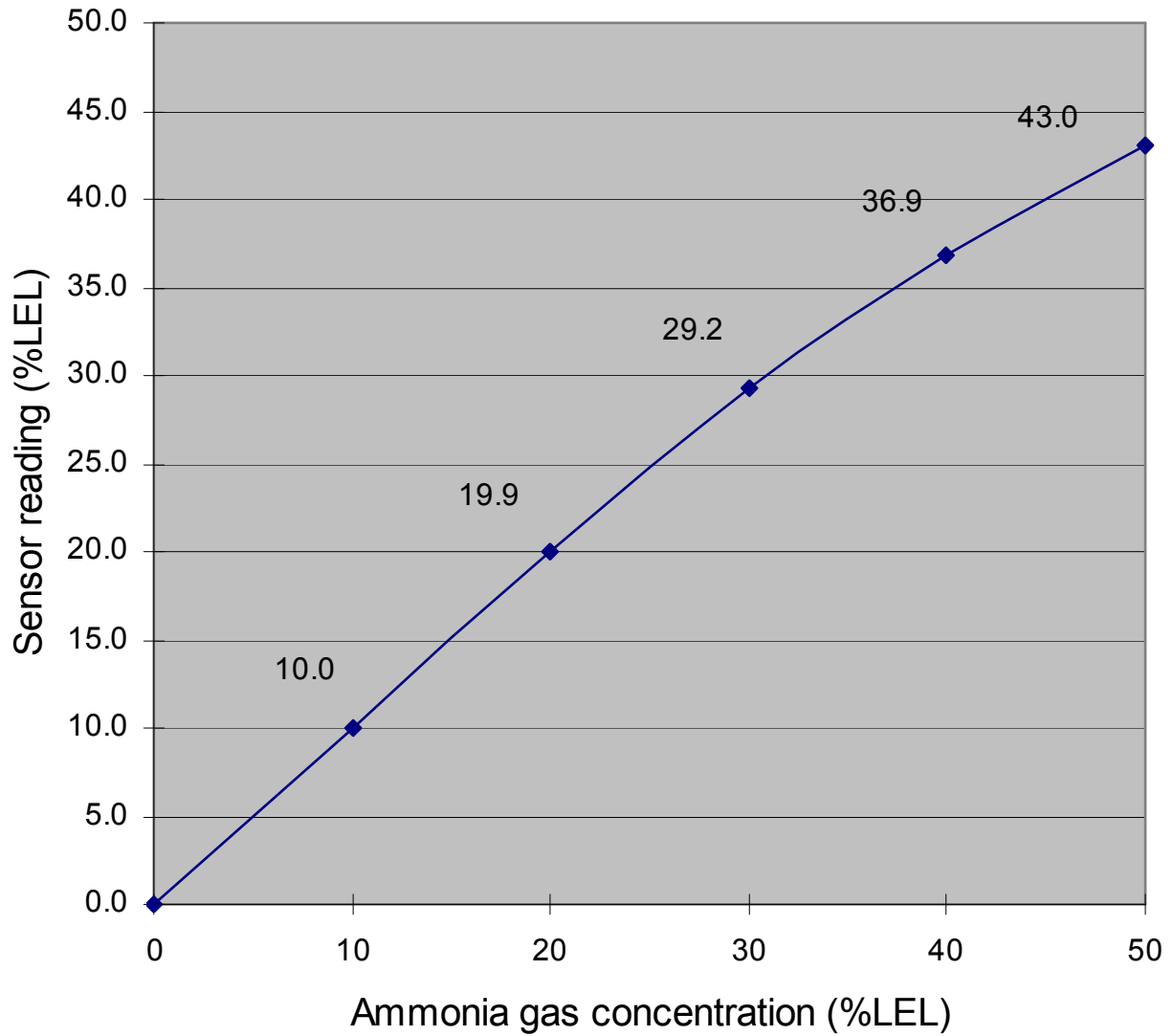


Linearity of NP-ANS (10 Sensors, calibrated at 10%LEL)





Linearity of NP-ANS (Mean Value, calibrated at 10%LEL)





Cross Sensitivity Data, NP-ANS

Gas/Vapour	LEL (CENELEC Standards)	Cross- Sensitivity (With Respect to Ammonia Response, LEL (%)
Acetone	2.6%	60
Ammonia	15%	100
Ethanol	3.3%	55
Ethyl Acetate	2.2%	50
Ethylene	2.7%	60
Hydrogen	4.0%	75
n-Octane	0.95%	35
Iso-Propyl Alcahol (IPA)	2.2%	50
Methane	5%	0
Methanol	6.7%	80
Methyl Ethyl Ketone (MEK)	1.9%	50
n-Butane	1.8%	30
n-Heptane	1.05%	40
n-Hexane	1.02%	45
n-Pentane	1.4%	40
Propane	2.1%	20
Toluene	1.2%	50
Carbon Monoxide	12.5%	20
Unleaded Petrol (Gasoline)	1.2%	35