

**INFRARED SENSORS TYPE MSH -HC
RESPONSE TO GROUP A, B AND C GASSES**

The following lists of gasses have been extracted from the European Standard EN 60079-20-1 and indicate the expected response of a sensor type MSH-HC for each of the gas types.

Key

√ = Good response W = Weak response X = No response ?=Unknown response

| Subdivision A | | | |
|-----------------------|----------|-------------------------------------|----------|
| 1.Hydrocarbons | Response | | Response |
| <i>Alkanes</i> | | <i>Mixed hydrocarbons</i> | |
| Methane | √ | Methane (industrial) | √ |
| Ethane | √ | Turpentine | ? |
| Propane | √ | Petroleum naphtha | √ |
| Butane | √ | Coal tar naphtha | √ |
| Pentane | √ | Petroleum (including motor spirit) | √ |
| Hexane | √ | Solvent or cleaning petroleum | √ |
| Heptane | √ | Heating oil | W |
| Octane | √ | Kerosene | √ |
| Nonane | √ | Diesel oil | √ |
| Decane | √ | Motor benzole | √ |
| Cyclobutane | √ | | |
| Cyclopentane | √ | <i>Aromatic hydrocarbons</i> | |
| Cyclohexane | √ | Styrene | √ |
| Cycloheptane | √ | Isopropenylbenzene (methyl styrene) | √ |
| Methylcyclobutane | √ | | |
| Methylcyclopentane | √ | <i>Benzenoids</i> | |
| Methylcyclohexane | √ | benzene | √ |
| Ethylcyclobutane | √ | Toluene | √ |
| Ethylcyclopentane | √ | Xylene | √ |
| Ethylcyclohexane | √ | Ethyl benzene | √ |
| Decahydronaphthalene | √ | Trimethyl benzene | √ |
| | | Naphthalene | √ |
| <i>Alkenes</i> | | Cumene | √ |
| Propane (Propylene) | √ | Cymene | √ |

| 2. Compounds containing oxygen | | | |
|---|----------|-------------------------------------|----------|
| | Response | | Response |
| <i>Oxides (including ethers)</i> | | Aldehydes | |
| Carbon monoxide | X | Acetaldehyde | W |
| Dipropyl ether | √ | Metlaldehyde | √ |
| | | | |
| <i>Alcohols and phenols</i> | | <i>Ketones</i> | |
| Methanol | W | Acetone | √ |
| Ethanol | √ | Butanone (ethyl methyl ketone) | √ |
| Propanol | √ | Pentan-2-one (propyl methyl ketone) | √ |
| Butanol | √ | Hexan-2-one (butyl methyl ketone) | √ |
| Pentanol | √ | Amthyl methyl ketone | √ |
| Hexanol | √ | Pentan-2, 4-dione (acetylacetone) | √ |
| Heptanol | √ | Cyclohexanone | W |
| Octanol | √ | | |
| Nonanol | √ | Esters | |
| Cyclohexanol | W | Methyl formate | W |
| Methycyclohexanol | √ | Ethyl formate | √ |
| Phenol | X | Propyl acetate | √ |
| Cresol | W | Butyl acetate | √ |
| 4-hydroxy-4- methylpentan-2-one (diacetone alcohol) | √ | Amyl acetate | √ |
| | | Methyl methacrylate | W |
| Acids | | Ethyl methacrylate | √ |
| Acetic acid | W | Vinyl acetate | √ |
| | | Ethyl acetoacetate | √ |

| 3. Compounds containing halogens | | | |
|---|----------|--|----------|
| | Response | | Response |
| Chloromethane | W | Benzyl Chloride | ? |
| Chloroethane | √ | Dichlorobenzene | X |
| Bromoethane | √ | Allyl chloride | W |
| Chloropropane | √ | Chloroethylene (vinyl chloride) | W |
| Chlorobutane | √ | d,d,d-trifluorotluene (benzotrifluoride) | X |
| Bromobutane | √ | Dichloromethane (methylene chloride) | W |
| Dichloroethane | √ | Chlorethanol | W |
| Dichloropropane | √ | <i>Compounds with oxygen</i> | |
| Chlorobezene | √ | Acetyl chloride | W |
| Dichloroethylene | X | Chloroethanol | W |

| 4. Compounds containing sulphur | | | |
|--|----------|--|--|
| | Response | | |
| Ethanethiol (ethylmercaptan) | √ | | |
| Propane-1-thiol (propylmercaptan) | √ | | |
| Thiophene | ? | | |
| Tetahydrothiophene | W | | |

| 5. Compounds containing nitrogen | | | |
|---|----------|----------------------------------|----------|
| | Response | | Response |
| Ammonia | X | Butylamine | √ |
| Acetonitrile | W | Cyclohexylamine | √ |
| Nitromethane | W | 2-aminoethanol (ethanolamine) | √ |
| Nitroethane | √ | 2-dietthylamineoethanol | √ |
| | | Diaminoethane | √ |
| Amines | | Aniline | X |
| Methylamine | W | NN-dimethylanine | W |
| Dimethylamine | √ | Toluidine | W |
| Trimethylamine | √ | Pyridine | ? |
| Diethylamine | √ | | |
| Triethylamine | √ | | |
| Propylamine | √ | | |

| Subdivision B | | | |
|---------------------------------------|----------|---|----------|
| 1. Hydrocarbons | | 2. Compounds containing nitrogen | |
| | Response | | Response |
| Propine(allylene, methylacetylene) | W | Acrylonitrile | X |
| Ethylene | W | Isopropyl nitrate | √ |
| Cyclopropane | W | Hydrogen cyanide | X |
| 1,3-butadiene | ? | | |

| 3. Compounds containing oxygen | | | |
|---------------------------------------|----------|--|----------|
| | Response | | |
| Dimethyl ether | √ | 1,3,5-trioxan | √ |
| Ethyl methylether | √ | Butyl glycolate (hydroxyacetic acid, butyl ester) | √ |
| Dietmethylether | √ | Tetrahydrofurfurl alcohol | √ |
| Dibutyl ether | √ | Methyl acrylate | √ |
| Ethylene oxide (oxione) | W | Ethyl acrylate | √ |
| 1,2-epoxypropane (propylene oxide) | √ | Furan | W |
| | | Crotonaldehyde | W |
| 1,3-dioxlane | W | Acrylaldehyde | √ |
| 1,4-dioxan | √ | Tetrahdrofuran | W |

| 4. Mixtures | | |
|--------------------|----------|--|
| | Response | |
| Coke oven gas | √ | |

| 5. Compounds containing halogens | | |
|--|----------|--|
| | Response | |
| Tetrafluoroethylene | X | |
| 1-Chloro-2,3-epoxypropane (epichlorohydrin) | √ | |

| Subdivision C | | |
|------------------|----------|--|
| | Response | |
| Hydrogen | X | |
| Acetylene | X | |
| Carbon disulfide | X | |

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