

MSA's standard XCell® Ex combustible gas sensor has been specifically designed to have a longer functional life in very harsh industrial conditions. MSA Engineers and Scientists have created a sensor that lasts significantly longer than industry average, using several new patented designs:

- Using two detector beads in the sensor (only one active at a time), and switching them over the sensor life, reduces the power consumption by a third and essentially doubles the lifetime.
- The invention of using a metal alloy support to brace the beads in position triples the mechanical robustness for surviving impacts.
- The new industry leading filter system doubles the field robustness versus previous designs by greatly increasing the functional lifetime in the presence of silicones and other industrial poisons.

These design improvements, including the new filter system, are the reasons MSA can offer a standard 3-year standard warranty and expect more than 4 years of life in harsh industrial conditions. However, the trade-off of having such a robust filter system is that the sensor can have a somewhat slower response time to very large hydrocarbon and some solvents (especially at low concentrations).

It is MSA's goal to provide the optimal detection solution on the market, based on the needs of our customers. To this end, MSA has also developed the XCell Ex-H sensor. The XCell Ex-H sensor targets special applications where there are concerns over very fast response times of low concentrations of large hydrocarbons or particular solvents. This EX-H sensor has an adjusted filter system which provides the industry standard level of poison resistance, but allows for a faster response time which is similar to or faster than the competition for these special gases and vapors.

The XCell Ex-H sensor has a standard 1-year warranty based on the sensitivity of this sensor and the special harsh applications that it is typically used for. The nominal lifetime is the same as the standard EX sensor when not exposed to high levels of poisons.

How to select the best solution for the customer's application?

Principally both XCell Ex sensors are detecting combustible gases and vapors. The Standard EX sensor covers the majority of industrial applications and has proven itself successful in daily use with high performance and a long life since its introduction in 2010. The new XCell EX-H sensor is a valuable extension to the MSA range, covering special applications.

As a practical rule the standard XCell Ex sensors is probably best if the majority of the detection needs are more in the green and blue area of Figure 1. Select the XCell Ex-H if the primary application is to measure analytes in the yellow space, especially for fast response of low concentrations.

Detecting Gas	
Acetylene	XCell Ex
n-Butane	
Ethane	
Ethylene	
n-Hexane	
Hydrogen	
Methane	
Propane	
Isobutane	
Propylene	
Pentane	
Gasoline	
Cyclohexane	
Diethylether	
Isopropyl Alcohol	
Methanol	
Toluene	
o-Xylene	
Acetone	XCell Ex-H
Ethanol	
Methyl Ethyl Ketone	
Nonane	

Figure 1 – Optimal sensor recommendation based on gases and vapors of interest

MSA's Recommendation: "For general safety where there is concern of reaching a combustible level of a wide range of gases, the standard XCell Ex sensor is recommended. For customers or applications which have a need for the fastest response times of low concentrations of particular large hydrocarbons or solvents (see chart above - yellow), will be best suited with the EX-H sensor."

As a final note, please consider that the XCell Ex-H sensor is extremely responsive to low levels of alcohols. Depending on the application, such sensitivity could be considered a nuisance which might not occur with the standard EX sensor or other detectors that have lower sensitivity or slower response times.