

# Application note

## Pharmaceutical applications

There are reportedly over 22,000 pharmaceutical plants in the World producing a wide range of varied products. Pharmaceutical production, whether continuous or batch, uses a variety of toxic and combustible materials. Not all gases or solvents are used in each process, but the general categories include Amines, Ammonia, Carbon Monoxide, Carbon Dioxide, various Halogens, Chlorides, Hydrogen Peroxide, Hydrogen Sulphide, Hydrogen Cyanide, Phosgene and a variety of solvents.



### Market Drivers

By streamlining the production process, maximising throughput and working within required safety standards, capital investment can be recouped more quickly; the use of gas detection equipment to monitor solvent emissions during operation can facilitate this. Local health and safety guidelines dictate safe working practices for personnel in connection with toxic substances. Failure to meet these minimum requirements exposes the operator to the risk of litigation. Emissions of solvents used within the production process must be minimised to meet latest international regulations on emissions. This requires significant investment in solvent reclamation equipment which must be protected. In addition, the use of continuous flammable gas monitoring will reduce insurance premiums further while ensuring safety levels are maintained.

### Application Examples

We have provided three examples of typical pharmaceutical applications:

#### Application 1: Bulk Storage and Preparation

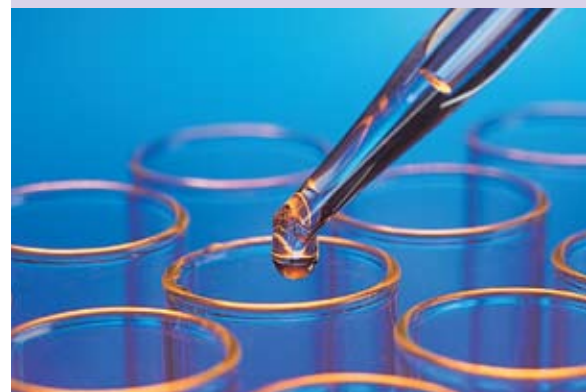
Solvents are both flammable and toxic. Bulk storage and preparation areas for production processes must be monitored for the build up of explosive atmospheres and dangers to personal health. Local fire regulations, as well as health and safety guidelines, must be followed. Typical equipment required will include infrared flammable gas detectors (point and open path) as well as flame and conventional smoke/fire detectors.

#### Application 2: Dryer and Oven Monitoring

As the printed material passes through the various stages of the dryer, solvent is evaporated through forced air ventilation and increasing temperatures. By controlling the speed the printed material passes through the oven, the temperature profile itself and also by monitoring the gas level, throughput is maximised, minimising production costs.

#### Application 3: Chemical Compounding and Synthesis

Drugs contain complex chemical compounds that do not naturally occur in large volumes. The manufacture of these chemicals requires solvents and other toxic compounds to be processed under increased temperature, pressure and humidity. The reactions that take place produce toxic bi-products and hazardous gaseous compounds that represent explosive hazards and danger to personnel through inhalation.



### Typical Products suited to pharmaceutical applications

#### SPM Single Point Monitor

- Fast response monitor specific to target gas only
- Gas sensitivity to ppb levels with physical evidence
- Minimum maintenance and no dynamic calibration
- Customised for harsh industrial environments
- More than 50 gas calibrations available



#### Searchpoint Optima Plus

- Detects a wide range of Hydrocarbons
- Fail-to-safe operation
- Increased stability from self-compensating optics
- Fast speed of response
- Reduced routine maintenance
- Immune to catalytic poisons
- Long operating life
- Works in inert atmosphere



#### Satellite XT Transmitter with Sensor

- Wide range of toxic, corrosive and combustible gas sensors available
- Continuous real-time monitoring
- Low cost of ownership
- Interchangeable intelligent sensor cell
- No dynamic gas calibration required
- Generic sensor head electronics
- 4-20mA or LonWorks® interface (providing data logging)
- Optional built-in relay



For more information, please contact a member of the Sales Team today on: **+41 (0) 44 943 4300** or email **gasdetection@honeywell.com**.