Introduction

Dusty environments present various challenges to effective and reliable smoke detection. Detection performance is questionable and generally compromised by the environment, longevity is limited and frequent problems and maintenance becomes costly. Xtralis recognised the need for a better detector and subsequently developed a unique ASD solution that is suited to a variety of harsh industrial environments - the VESDA VLI.

Special features such as an industry first fully monitored ‘Intelligent’ filtration system, IP66 rated enclosure, particle separation, conformal coated electronics, all serve to ensure the VLI performs and survives the dusty conditions of the protected environment.

Each application will have some unique aspects, and varying levels of dust. However, a detector designed for industrial applications and harsh environments, that can perform as intended and offers reliable fire detection must be given consideration and certainly acceptance over other technologies designed for standard or what we may term “normal” environments.

The degree of dust in an application will determine the system design approach, i.e. the length of the pipe network, placement, the number of holes and sizes, whether countersinking is needed or if an additional in-line filter is required.

Certainly in most instances a manual or automated backflush arrangement is included as part of the overall solution so that purging of the pipe system can be undertaken in line with the site’s environmental conditions.
As indicated the VESDA VLI is a purpose built
detector with specific features that can perform in a
variety of industrial dusty, dirty and harsh conditions.
It is generally located within the dusty environment

In some applications, such as a slightly dusty factory
or warehouse, whilst a standard VESDA detector may
be suitable, it is generally recommended that an
in-line filter be incorporated in the design. The need
for an in-line filter can be determined in consultation
with an Xtralis design engineer based on the
environment.

However, if installing standard VESDA detectors,
which have a lower IP rating than the VLI, in-line
filters can be located within the protected
environment where dust is present and the detector
positioned outside the sampling area.

The application of ASD systems in environments with
high levels of airborne particulates (dust) may
increase the chance of sampling hole blockage. Pipe
network maintenance activities (i.e. back flush and
the manual cleaning of sampling holes) are likely to
be more frequent in such environments to ensure
optimum performance.

Counter-sinking the sampling holes on the pipe
network is a simple cost-effective measure to address
the potential issue of sampling hole blockage. The
counter-sinking sampling hole configuration as
shown in Figure 1 will aid in reducing the build-up of
contaminants at and around the sampling hole and
reduce the incidence of hole blockage.

It is also recommended that since all applications are
different and have unique conditions advice be
obtained from our Application Engineering Group.

For more information on how your business can benefit from the
Xtralis solution for Industrial Applications, please visit
www.xtralis.com/industrial or contact your local office or
Authorised Partner for expert advice and assistance with design.