Q: What is the difference in performance between an OVR and a catalyst based oil purifier?

A: There are two technologies typically available for the reduction of oil vapour, these are Adsorption Filters (OVR) and Catalyst systems.

Typically oil vapour is not the only contaminant that requires treatment, and compressed air contains 10 contaminants that need to be purified in order for that air to be classified to ISO8573-1 (15 for breathing air applications).

These contaminants are:

DIRT: Atmospheric Particulate / Rust / Pipescale / Micro-organisms
WATER: Liquid Water / Water Aerosols / Water Vapour
OIL: Liquid Oil / Oil Aerosols / Oil Vapour

Each contaminant requires a different technology for its purification.

Purification Technologies	Contaminants								
	Atmospheric Particles	Rust & Pipescale	Micro-organisms	Liquid Water	Water Aerosols	Water Vapour	Liquid Oil	Oil Aerosols	Oil Vapour
Water Separator				●			●		
Coalescing Filter	●	●	●		●			●	
Adsorption Filter									●
Adsorption Dryer						●			
Refrigeration Dryer						●			
Dust Removal Filter	●	●	●						
Sterile Filter			●						

Both technologies require additional purification technologies to operate correctly and to deliver compressed air in accordance with ISO8573-1 classifications.

- Water Separator (optional) - Only required if liquid water or liquid oil is present at the point where the purification system is to be installed (protects the coalescing filters)
- General Purpose / High Efficiency Coalescing Filters - These will reduce the concentration of oil & water aerosols, atmospheric particulate, rust, pipescale and micro-organisms.
- Dryer - This will reduce the water vapour content of the compressed air.

The general purpose and high efficiency coalescing filter combination will reduce 6 different contaminants and typically provides air purity to ISO8573-1:2010 Class 1 for particulate and Class 2 for total oil.

An adsorption or tandem technology dryer will reduce water vapour and be used to provide air purity to ISO8573-1:2010 Classes 1, 2 or 3. A refrigeration dryer would be used should air purity to Classes 4, 5 & 6 be required.

Adsorption filters such as OVR are sized to match the system operating parameters and provide 12 months of continuous operation. These units are static adsorbers, have no moving parts and do not require an electrical connection. OVR performance has been independently validated by Lloyds register and in combination with the general purpose and high efficiency coalescing filters, delivers air purity to ISO8573-1:2010 Class 0 and Class 1 for total oil.

Catalysts systems alone do not provide air purity to ISO8573-1:2010 for total oil.

Q. If using a catalyst system, do I still need coalescing filters?

A. Yes, although catalyst systems may also work with oil aerosols, they do not purify the other 5 contaminants reduced by a coalescing filter (water aerosols / atmospheric particulate / rust / pipescale / micro-organisms). Additionally, the catalyst needs protection from particulate to prevent blockage

Q. If using a catalyst system, do I still need a dryer?

A. Yes, the catalyst raises the temperature of the compressed air, reducing the humidity but it does not reduce the pressure dewpoint of the compressed air and once cooled, condensation of water vapour into liquid water can still occur.

Q. Does OVR concentrate any contaminant?

A. No, unlike catalyst systems which convert oil into CO2 & water, OVR does not add additional contamination into the system.

Q. Can air treated by coalescing filters & OVR be used for breathing air?

A. Yes, as long as CO & CO2 levels can be guaranteed to be below legal limits and unlike catalysts systems, OVR will not concentrate CO2 levels in the compressed air.

Q. Does OVR require an electrical supply?

A. No, OVR requires no electrical supply, keeping running costs low.

Q. What is the difference in running costs between an adsorption filter such as OVR and a catalyst based oil vapour removal system?

A. As with any purification technology, both OVR and a catalyst based system will have a pressure drop. Pressure drop requires the compressor to run to overcome the loss and therefore there will be an operational cost for this. The pressure drop across each technology should be similar.

Unlike adsorption filters, catalyst systems also require heat and therefore electrical energy. Operational costs of a catalyst system are therefore higher.

Q. Are the maintenance costs of adsorption filters such as OVR and catalysts systems similar?

A. OVR only requires an annual change of the adsorption cartridges. Catalysts systems require periodic servicing of the heaters and catalyst bed and therefore the maintenance costs of a catalyst system is higher.

Q. Does a catalyst system increase the operating temperature of the compressed air?

A. Yes

Q. What factors can affect the lifetime of the catalyst system.

A. Bulk water or water aerosols can "poison" the catalyst, requiring, costly, unscheduled maintenance. Heater failure will also saturate the catalyst, again requiring, costly, unscheduled maintenance.