



**APPLIED VACUUM  
ENGINEERING**

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## **GUIDANCE NOTES ON DEGASSING SYSTEMS USAGE**

Liquids which have been mixed, whether by hand or machine usually contain small bubbles of air which for some processes such as casting can cause imperfections in the finished product. The air is removed under vacuum. Under vacuum the small bubbles of air within the liquid expand, rise to the surface and are exhausted through the vacuum system.

It is important to understand that the whole object is to remove the air, **NOT** to evaporate the liquid or any of its component parts.

Under vacuum most liquids will evaporate. In layman's language, they will boil. This evaporation point is known as the vapour pressure. The vapour pressure varies depending on the volatility of the liquid. That evaporation is subject to the degree of vacuum, and the temperature of the liquid.

If the system is pumped to too low a pressure then not only the air will be expelled from the mix but solvents water or any other volatiles will be evaporated. Those vapours re-condense in the exhaust side of the vacuum pump back to the liquid state. That can and will cause damage to the vacuum pump or loss of performance of the pump. Care therefore has to be taken to ensure that the pressures reached are sufficient to expel the air from the mix, but not low enough to evaporate any of the volatile components of the mix.

The correct method to adopt to minimise these problems is to use the manifold isolation and chamber vent valves as shown on the operating instructions correctly.

Once the liquid is starting to pump down watch the surface through the acrylic top. As soon as you see bubbles isolate the pump with the manifold valve. The bubbles will decrease in volume, and after the surface has calmed open the valve again. If the liquid is very volatile it may also be necessary to bleed a little air in via the manifold vent valve. Repeat the process for as many times as required. Very viscous liquids or very non-viscous liquids will react in different ways so the work has to be done initially by a little trial and error.

If the system is simply left to its own devices it is inevitable that the vacuum pump will become contaminated, and this can occur very quickly.