

## ask the expert...

### SIVEX® MOBILE FLAMELESS UNIT FOR FILTER PREHEATING



*Brian Milligan,  
Global Product  
Manager for  
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Pyrotek is committed to continuously improving the understanding of molten metal filtration performance and one of the key factors in the operation of all filter systems is the preheating of the filter. Here, the company's Global Product Manager for this area of aluminium production technology, Brian Milligan\* explains the features and process benefits of the "SIVEX" Filter Preheating System, and responds to a range of practical questions posed by customers.

**Q: What is the SIVEX Filter Preheating System?**

A: The SIVEX Filter Preheat system from Pyrotek comprises a flameless mobile preheating unit designed for easy and rapid preheating of SIVEX molten metal filters. Correct preheating of the SIVEX ceramic foam filter is essential to ensure that the filter performs its function of efficiently removing non-metallic inclusions from aluminium and its alloys in a repeatable manner. Application of the system improves process performance and boosts metal quality for the customer.

**Q : What are the special requirements of an effective preheating system?**

A: Customers' filter preheat operations generally call for a range of requirements, including the following.

- Stable operation
- Gas and air pressure regulation and

flame safety controls to meet regulatory requirements for combustion and flames

- Safe, consistent and reliable filter preheat
- Rapid and uniform preheat
- Safe and easy operation
- Operator-friendly
- Cost-effectiveness

The preheat system used should allow the filter to be heated to a consistent temperature that fully utilises the effective filtration area available within that filter. An incorrectly heated filter can lead to its premature failure due to blockage or mechanical damage and will substantially reduce the effectiveness of the filter in removing inclusions.



*SIVEX mobile filter preheating system*

Preheating is particularly important when using fine-pore filters. In this case consistency of heating is important to ensure that aluminium flow of molten aluminium through the filter is at a controlled velocity through the complete area of the filter.

**Q: What are the particular features of the SIVEX preheat system?**

A: The SIVEX preheat system can effectively reduce preheat time and uses a flameless, hot air heating system incorporating a specially designed burner nozzle, which offers a safer preheat without spalling or damage to the filter and filter bowl refractories.

To enhance operator safety, the specially designed "hot pipe," after removal from the filter box, can be stored in a safe tube, which is secured to the floor.

A separate control panel with flame ignition can be used to regulate the preheating cycle and signals when the filter is ready for use. Additionally, the control panel allows the system to meet international safety systems and conforms to workplace health and safety requirements.

The specifics of the system are detailed in comprehensive datasheets available from Pyrotek, along with any specific information required by customers.

In some instances, the preheat system can be adapted to preheat the launder systems, ensuring a consistent and safe method of preparing the launders prior to casting.

The preheating system can also be fixed to a floor or wall, according to a customer's particular requirements.

**ask the expert... (continued) by Brian Milligan****SIVEX® MOBILE FLAMELESS UNIT FOR FILTER PREHEATING****Q: What are the proven benefits of the SIVEX preheating system in meeting the requirements of practical operation?**

A: To date, all SIVEX preheating systems supplied by Pyrotek to respective customers have been met with a great deal of satisfaction, and the units have been found to deliver all practical requirements as outlined above. In particular, more efficient operation of the filter has been realised and operators are confident about using a safe and easy-to-handle system.

Various particular advantages reported from customers' process operations include the following.

- Preheat time reduced to 8 minutes from the previous 35–40 minutes
- Filters are not contaminated with soot deposits which can influence filtration efficiency
- Safety factors incorporated conform to formal H&S requirements
- Commissioning is very quick and simple
- Low maintenance
- Spare parts are readily available
- Cost-effective

*\* Brian Milligan is Pyrotek's Global Product Manager, SIVEX® Filters and SIVEX® Filtration Systems, based at Pyrotek, Sierre, Switzerland. Brian is a Metallurgical Engineer with over 35 years experience and intense interaction in the aluminium industry worldwide. He has been instrumental in introducing ceramic foam filters and complementary systems into global production. Currently, Brian is actively advancing filtration systems further to meet the ever-increasing demands of metal processors.*