

## Desiccant Breathers: A Critical Component for Protecting Fuel Storage Systems & Power Equipment



## **Product Overview**

Desiccant breathers are a necessary and often highly critical service component for operating facilities. Almost all systems that store or circulate lubrication oil, fuel, or hydraulic fluid must prevent the intrusion of water vapor and particulate. Decades of studies have verified the obvious; that water ingress degrades the fluid properties and causes corrosion. This particulate accumulation results in surface wear, diminished performance, and shortens the operating life of rotating equipment.

Fuel storage facilities in particular, whether bulk storage sites, transfer operations, or consumer service stations can maintain optimal product quality with continuous use of properly-specified, high-quality desiccant breathers.

## The Challenge

A relatively recent development in automotive fuels, particularly in Europe, has been the blending of bio-fuel into standard petrochemical diesel. Biofuel is hygroscopic, that is, it absorbs moisture, so it presents even greater risk to the quality of fuel and storage tanks. Water vapor can enter tanks through open porting where it condenses onto surfaces, or the vapor can be directly absorbed from the air. Unchecked, the result will be a continuing growth of bacteria, fungi, and algae and the condition called "diesel bug". These microbes and their byproducts accumulate quickly, and if untreated build-up on tank bottoms, leaving the fuel unreliable after several months.

Regardless of the type of fuel, water accumulation in storage tanks risks damage to the fuel, tank structure, and the vehicles using the fuel. Steady use of best practices is a proven means to the lowest total cost of delivering quality. These means include keeping tanks full (i.e. less air head space) and frequent volume turn-over. But these methods are often beyond the control of maintenance staff, whereas they can manage quality with the use of desiccant breathers.



This fuel tank, serviced by Royac, Inc. features a TTI Rebuildable Stainless Steel Power Breather <sup>™</sup>. The stainless steel breather vessel is rugged and durable to tolerate harsh outdoor environments and provides many years of trouble-free operational life. The desiccant media is sized to offer unrestricted air flow and protect the fuel from damaging particulate and moisture entry.

## Supporting Fuel Distribution In The Market Area

Javier Alvarez is the Business Development Manager of Newtoil S.A. and has been supporting fuel distribution operations for 15+ years. Newtoil provides maintenance services and consumables to hundreds of retail filling stations and bulk facilities across Europe and Africa. "We deal with client fuel tanks mostly from 50 to 100 thousand liters and I need to keep them clean and well-maintained, or the cost impact can be considerable. Air dryers have been very important to us to stay on top of quality."

Roberto Schnakofsky is an executive with Royac, Inc. (Houston, TX). Roberto is a supplier of industrial lubricants and provider of maintenance services for fuel and lube tanks. "TTI Power Breathers<sup>™</sup> have been our go-to option. They've performed great for us on fuel tanks. We're changing twice a year or maybe three times where the tanks see above-average duty. We're servicing tanks from 500 to 12,000 gallons and the TTI desiccant Power Breathers are keeping them clean. We've placed a number of them in humid Louisiana weather and had no problems."



Rodney Sims is Lubricants Division Manager for Delta Fuels Company (Ferriday, LA). Delta Fuel offers regional fuel delivery and plant reliability services nationwide. Their Reliability360 Program collaborates with best practice partners in the industry for oil analysis, contamination exclusion, and preventative maintenance. Their team of Certified Lubricant Specialists support clients in areas of lubricants storage and handling, water and particle removal, process implementation, and education.

Rodney offers that "Our partnership with TTI has gone very well after some years of not-so-good relationships with other manufacturers of breathers and associated products. We get top-notch service and super-responsive collaboration and that helps us win more projects and keep our project sites happy and operating at peak performance." Further driving the need for cleaner fuels are the requirements of vehicle manufacturers and the implementation of the ISO 4406 standard defining "clean" diesel fuel. Vehicle fuel injectors are increasingly designed for the higher injection pressures needed to deliver lower vehicle emissions. To operate reliably, cleaner diesel fuels are necessary. For diesel to be recognized as "clean" under the ISO standard, the fuel must contain less than 200ppm of dissolved water and have a specified maximum particulate cleanliness level. The use of high-quality breathers in fuel storage systems is a key component towards these objectives.

Beyond fuel, it's commonly known that contamination of lube oils used in rotating equipment comes from ingress of air. This contamination is a leading cause of failure or poor performance for gearboxes and pumps. These systems "breathe" as air expands and contracts due to fluid warming, cooling, and circulating. This breathing carries in fine particulate and moisture which, unless captured, will degrade lubricant and equipment. Studies have supported the general understanding that it costs 10X more to remove particulate and moisture contamination and remedy its damage than it does to simply prevent its intrusion in the first place.



A series of gearboxes is protected against contamination by TTI Desiccant Power Breathers<sup>TM</sup>. They prevent ingress of particulate in the harshest environments.



A hydraulic power system uses a TTI Desiccant Power Breather<sup>™</sup> to protect against corrosion of steel equipment components.

In summary, the necessity of desiccant breathers for protection of fuels and oils is clear. They're a simple and economical component of fuel storage maintenance and plant reliability management. You must take the time to select a supply partner that provides superior market knowledge, customer service, response time, and technical support. Together, you can support your clients with the solutions they need to be their best.

TTI welcomes the opportunity to be your partner of choice for your plant reliability and contamination prevention initiatives. For more information on how high-quality desiccant breathers can protect your fluids and equipment, please visit **www.ToddTechInc.com** to learn more about the TTI family of Power Breathers and related products. And please send your most difficult contamination challenges to **sales@ToddTechInc.com** for an immediate consultation.



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