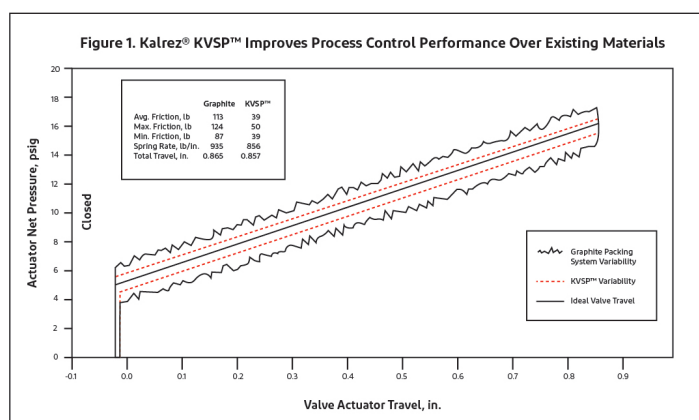


DuPont™ Kalrez® Valve Stem Packing (KVSP™): Reducing Fugitive Emissions

DuPont™ Kalrez® Valve Stem Packing (KVSP™), is a combination of chemically-resistant DuPont™ Kalrez® perfluoroelastomer (FFKM) parts and DuPont™ Vespel® V-rings that can **reduce stem-based fugitive emissions** and **improve process control** throughout the lifespan of the valve.

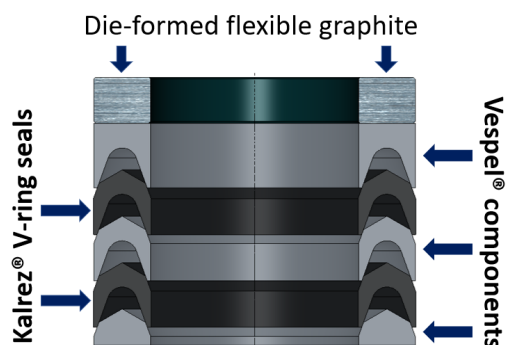
Fugitive emissions remain a concern for many industries due to their potential to create environmental harm and incur economic costs. KVSP™ has the ability to significantly reduce stem-based fugitive emissions of methane and can also be used for handling other gasses including hydrogen.

KVSP™ systems increase a valve's ability to react quickly and smoothly to process changes (Figure 1). KVSP™ reduces process control variability to the control system's capability, resulting in improvements to both yield and product quality on specification.



Minimize fugitive emissions while increasing efficiency and cost savings

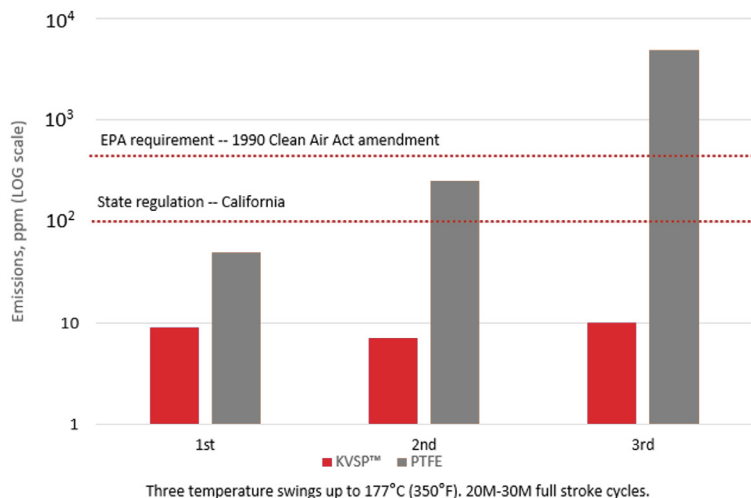
- KVSP™ systems provide performance that approaches zero leakage. This is verified using EPA Method 21 for the determination of leakage of hydrocarbon-based volatile organic compounds (VOCs).
- KVSP™ requires smaller valve actuators than those required for graphite packing because it requires less compressive force and has much lower valve stem friction, leading to significant cost savings.
- KVSP™ reduces the frequency of costly repairs or replacements due to its lower loading (lower wear rate), extending the lifespan of the valve and without needing regular adjustment.



DuPont™ KVSP™ kits also can include an additional flexible graphite ring for API 607 fire safe performance.



Controlling Fugitive Emissions: DuPont™ KVSP™ vs PTFE Packing System (EPA Method 21)



Test repeated three times according to EPA Method 21. The DuPont™ KVSP™ system maintains excellent sealing performance throughout all three thermal cycles, while PTFE valve packing tends to undergo creep at operating pressure and temperature resulting in increased fugitive emissions. The final measurement reading was around 5,000 ppm, more than 20 times higher than the EPA's 500 ppm regulation for compliance with the Clean Air Act.

Valve Compatibility

- KVSP™ is available in 3- and 5-piece kits to meet the sizing requirements of standard OEM rising-stem control valves

Service Temperature

- Rated for continuous service from -20 °C to 260 °C (-4 °F to 500 °F)

Installation

- Drop-in system: no valve modifications required
- Live loading preferred

Benefits

- Minimization of fugitive emissions over a long service life
- Lower actuator cost due to lower actuation force needed compared to graphite solutions
- Improved process control due to better alignment between the control system and valve response, thanks to low stem friction

Visit us at **kalrez.com**

The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable and falls within the normal range of properties. It is intended for use by persons having technical skill, at their own discretion and risk. This data should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.

CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, discuss with your DuPont customer service representative and read Medical Caution Statement H-50103-3.

DuPont™, the DuPont Oval Logo, and all products, unless otherwise noted, denoted with ™, ® or © are trademarks, service marks or registered trademarks of affiliates of DuPont de Nemours, Inc. © 2022 DuPont. All rights reserved.

Form No. KZE-A40129-00-1022 CDP
Rev. 0, November 2022

