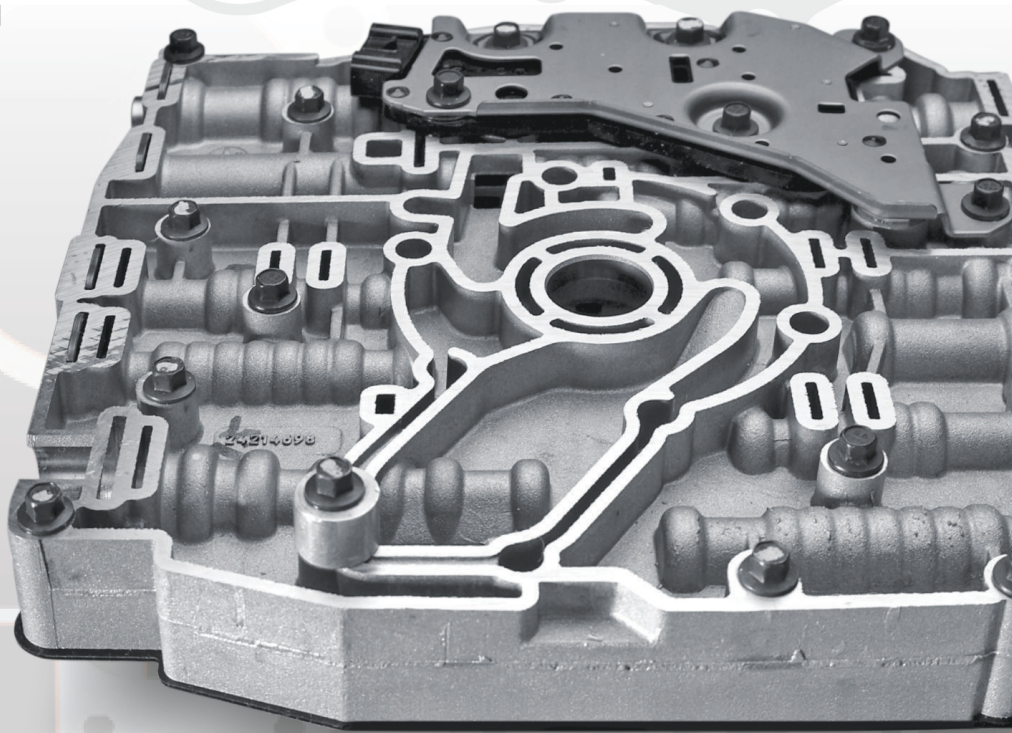
ALKEGEN

ISI VERSUS LIQUID SEALANTS

Brochure

Interface
Performance Materials
BY ALKEGEN



Engineered Composite Gaskets

A COST-EFFECTIVE ALTERNATIVE TO LIQUID SEALANTS

Engineered Composite Gaskets Can Save You Money

Interface Solutions' products, including the revolutionary Select-a-Seal® technology associated with liquid sealants. The table below highlights how gaskets from ISI, compared to liquid sealants, can save OEMs money in the long run.

Engineered Composite Gasket Cost-Cutting Potential vs. Liquid Sealants

Engineered Composite Seals Cost-Saving Features

Flange Preparation	• Engineered composite gaskets are more forgiving in uneven-flange applications = less machining and associated costs • No wipe-down/cleaning of flange faces = lower labor costs and reduced rework efforts
Joint Limitations	• Can be used in bi-metallic and dynamic joints, allowing manufacturing operations to use only engineered composite technology = lower production costs
Assembly	• Eliminating the need for automated dispensing equipment = lower capital costs, less production downtime, and reduced scrap and rework • Production consistency = no manual liquid dispensing • Improved productivity; no curing results in less scrap and rework
The Environment	• Solvent-free and asbestos-free sealing = no inherent environmental challenges or costs and compliance fears
Worker Safety and Comfort	• Solvent-free sealing = no inherent employee safety or comfort challenges and related costs

- **Flange Preparation:**
  Engineered composite gaskets are more robust in rough-flange applications and Select-a-Seal gaskets very often allow for the successful sealing of as-cast flanges. Material compression provides needed conformability to flange surface irregularities. Wiping down flanges is not required with engineered composite gaskets.

- **Joint Limitations:**
  Correctly engineered composite gaskets are permanent solutions in bi-metallic and dynamic joints. Further, an all-composite-gasket operation requiring fewer technologies is more efficient and can reduce costs.

- **Service Part control:**
  OEM can sell gaskets, but the liquid is of little value to them.

- **Assembly:**
  In properly engineered seal joints, correct gasket positioning and adherence to specified bolt torque ensure the proper sealing of virtually any kind of joint. All-composite gasketing in OEM products allows for uniform and consistent manufacturing procedures and more predictable performance, which reduces waste and rework.

- **The Environment/Worker Safety and Comfort:**
  All Interface Solutions gaskets, including the robust and durable Select-a-Seal line, are solvent-free and asbestos-free, which means that the processes by which they are manufactured, and the processes required to install them are safe environmentally and for production workers.

- **Warranty Issues and Worker Satisfaction:**
  Once a liquid seal cracks, the seal is gone. Liquid sealants provide marginal adhesive strength. An engineered composite gasket engineered for each specific application can enable OEMs to reduce warranty claims through predictable performance and greater customer satisfaction.

Liquid Sealants Can Be Expensive

The "product" or polymer cost of an RTV (room-temperature vulcanizing) or anaerobic liquid sealant to seal flanged joints may be only pennies per joint. However, costs associated with flange preparation, the inability to standardize production procedures, automating sealant dispensing, protecting the environment, ensuring worker safety, meeting warranty obligations, and ensuring customer satisfaction can significantly drive up the total cost of a liquid-sealed joint. The table below highlights some areas of concern and where added expenses might occur for OEMS (original equipment manufacturers) who use liquids to seal flanged joints.

Potential Expense Factors in the Use of Liquid Sealants

Liquid Sealants' Added Expense Factors

Flange Preparation	• Precision machining may be required = extra cost • Manual wipe-down/cleaning added labor costs
Joint Limitations	• No bi-metallic joints = loss of production uniformity
Assembly	• Robots, software, etc. = high capital costs • Power quality problems = robot downtime and/or production stoppages • Manual sealant application = inconsistent results • Curing problems or adhesion = scrap or rework
The Environment	• Engineered, approved containment plan • Optimizes cost to contain spill • Environmentally safe disposal of sealant and containers
Worker Safety and Comfort	• Solvents in sealant or process = illness and absenteeism
Warranty Issues and User Satisfaction	• Low adhesive strength = seal failure and warranty claims

- **Flange Preparation:**
  Since liquid sealants have low adhesive strength, they are inappropriate for as-cast or rough flanges. Therefore, they may require more precision flange machining than engineered composite gaskets. Plus, many liquid sealants will not seal in the presence of machining oils, grease, or dust, and additional labor costs result from the need to wipe flanges before assembly.

- **Joint Limitations:**
  For the same reason, liquid sealants are inappropriate for dynamic or bi-metallic joints. In products with these and other types of joints, liquid sealants make assembly more complex and possibly more expensive.

- **Assembly:**
  Whether the application of liquid sealants is automated (using robots) or manual, there are associated costs. Manual applications, by contrast, cannot be consistent from workpiece to workpiece. The possible results of manually applying liquid sealants could include rejects, rework, and warranty claims.

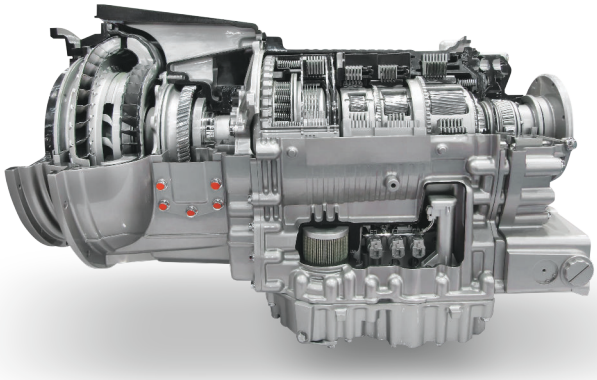
- **The Environment:**
  For OEMs using liquid sealants there is a requirement, at least in the United States, to implement an engineered, approved containment plan to ensure that spills or leaks do not enter water or sewage systems. In addition, there are costs related to the environmentally safe disposal of unused sealant and sealant containers. Finally, wiping rags loaded with solvent and contaminants from cleaning flange surfaces may be flammable and pose additional hazards in use or disposal. It is important to discard them in an environmentally responsible way.

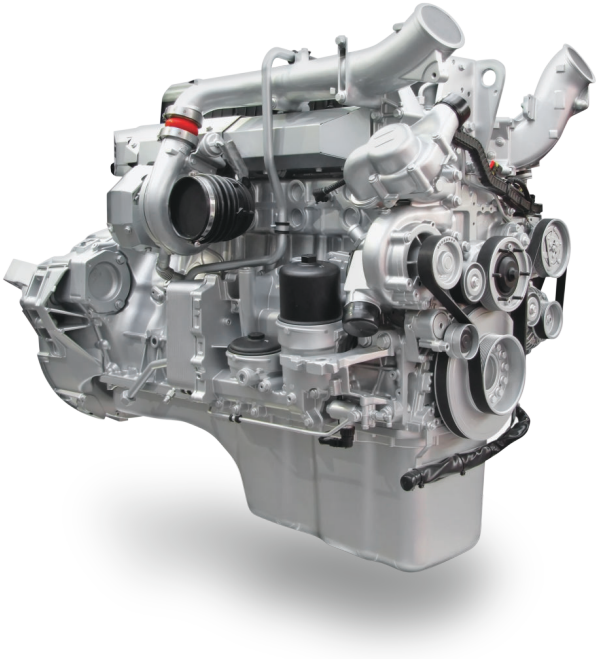
- **Worker Safety and Comfort:**
  Liquid sealants and the solvent-soaked rags used to clean flanges often introduce foul-smelling, nausea-creating airborne hazards into the workplace. The result can be sick and disgruntled workers, and absenteeism that affects productivity and the bottom line.

- **Warranty Issues and User Satisfaction:**
  Liquid sealants' lack of adhesive strength can lead to leaks in finished products and warranty claims and user dissatisfaction. For example, some liquid sealants are permeable to certain contemporary fluids (e.g., recently introduced coolants, motor oil, axle grease, and friction modifiers). These sealants are quite susceptible to degeneration in bi-metallic and dynamic joints because of their low shear strength. In addition, liquid sealants have curing problems. Anaerobic sealants that cure and seal only in the absence of air are difficult to use in ambient conditions, and excess, uncured material on the outside of joints will collect loose particles and prevent paint from sticking to surfaces. The results could ultimately lead to product rejection, rework or warranty claims. RTV sealants require curing time or cure packages that can hasten joint degradation, resulting in scrap, rework or warranty claims.

Global Support

At Interface Solutions, we understand that different market segments and localities require different products, different approaches, and different levels of technical support. With our knowledge of the global market, our broad product line, and value-added services, we are uniquely equipped to support your needs. Contact Interface Solutions today. We will work with you to provide cost-effective, technically reliable sealing solutions using your performance and application criteria.





Quality Standards

Manufacturing plants in Beaver Falls, Fulton, and Hoosick Falls, NY are registered to ISO 9001, as is the Research and Development facility in Lancaster, PA. The Centerville product design and manufacturing operation and manufacturing plants in Croghan, NY, and Marshalltown, IA are registered by Underwriters Laboratories, Inc. to TS 16949, the Harmonized Standard for the Automotive Supply Chain. TS 16949 is the automotive industry's most challenging standard. We view these certifications as confirmation that our quality processes are among the best in the sealing industry. Our OEM and aftermarket customers benefit from added assurance of our quality.

Trust is the essential link in your global supply chain. With manufacturing and service resources in Asia, Europe, and North America, ISI materials provide affordable durability and meet the highest global standards for quality, safety, and environmental responsibility.

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