



**KAYSUN**

INJECTION MOLDING & ENGINEERING SOLUTIONS

*How Molder Experience Influences the*  
DESIGN AND PRODUCTION OF  
COMPLEX APPLICATIONS



The resin shortage has sent shockwaves throughout the plastics industry. Suppliers, molders, and ultimately customers are struggling with unprecedented disruptions in materials, services, and delivery. A once reliable process seemingly unraveled overnight.

It has given rise to renewed emphasis on raw and alternate material accessibility, resin and part quality, and supply chain strength. Moreover, it points to smart logistics management that includes reshoring, safety stock inventories, and — perhaps most importantly — cultivating trusted relationships with knowledgeable, experienced custom injection molders.

The value of aligning with the right molder partner proves itself during industrywide, cataclysmic events, and in day-to-day challenges such as those experienced by an industrial personal protective equipment manufacturer.



## CHALLENGE



Our customer in the industrial personal protective equipment industry developed a handheld gas detection device that incorporated advanced sensor technologies. The device housing needed to protect this delicate instrumentation and also align with existing product branding aesthetics.

An offshore vendor produced a similar housing for a prior project, but the customer experienced poor quality parts and inconsistent deliveries — detriments to product reliability, timelines, and budget. Also, the vendor could not provide Design for Manufacturability (DfM) support that the customer's engineering team needed to ensure quality design and production efficiencies.





## SOLUTION



The shortfalls of the overseas vendor were quickly evident, and the customer returned to Kaysun. They needed a custom injection molder they could count on for quality parts, on-time delivery, and deep knowledge and application of DfM processes. Having worked with Kaysun in the past on a similar device, the customer's choice was obvious.

The Kaysun team worked closely with the customer's engineering team for component design and development. Mold fill analysis pinpointed substrate and overmold molding issues. In turn, the data was used to select compatible rigid materials for improved moldability and reduced warpage, as well as an appropriate thermoplastic elastomer (TPE) overmold.

The project took on added complexity when a mid-production decision was made to add a third overmold material and new color. The modifications required Kaysun to build a new tool for the third overmold sequence and adapt existing tooling to accommodate the third TPE overmold without compromising material flow, adhesion, or shut-off functionality.







## RESULTS



Kaysun's vast experience with TPE, overmolding adhesion compatibility, and industry-leading injection molding expertise was essential for successful execution of a project that included unanticipated modifications. The ability to seamlessly pivot to a viable solution without spending undue time or resources would have been nearly impossible for a less sophisticated molder.

The resulting gas detection device housing was on point with:

- A rigid substrate design that improved moldability and reduced warpage
- A polycarbonate body that was robust and transparent for easy-access electronics readouts
- A soft-touch TPE overmold for a sure grip and at-a-glance color identification
- Improved functionality with the addition of a highly visible and functional red "panic" button
- Aesthetics that complemented the existing product line branding





# KAYSUN'S IMPACT



When a customer chooses to return to a molder to seek help, it speaks highly of the integrity of the relationship. In this case, trust had been established supplemented by Kaysun's:

- Superior customer service
- Deep knowledge and application of complex injection molding processes
- DfM and TPE experience
- Materials expertise
- Willingness to collaborate at every project touchpoint

Ensuring successful project outcomes requires partnering with a complex injection molder that is experienced, flexible, insightful, and has the engineering team to support your project.

*Contact Kaysun today to discuss how we can  
help solve your toughest challenges.*



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