



## Motion Control Gel for Hand-Held Applicators

**Application: Spring-Driven Mechanism**

**Location: USA**

### Challenge

Our R&D scientists and engineers work directly with customers to understand their device and performance requirements throughout the design process. Those requirements are subject to change during optimization, validation and clinical trial stages as a device advances toward commercialization. We are often required to design special tests and customized products, but our goal is always to create a product with application beyond its original intended customer.

Several years ago, as we began to conceptualize our 800 Series of precision motion control (damping) products, we received an inquiry from a start-up MedTech company for a plastic-adhesive gel for their spring-driven device. Spring-driven, hand-held, single-use applicators are employed in surgical and drug delivery applications where a high degree of force is required which must be moderated across time and/or distance to control shock, actuation timing and haptics (sound and feel perception).

This gel needed to:

- Reside in a channel of the mechanism without migrating during shipping and storage
- Dampen motion appropriately
- Resist radiation sterilization
- Exhibit high materials compatibility with a range of plastics including polycarbonate.

As a silicone-based gel was not desired, several of Nye's standard hydrocarbon-based damping gels were tested, but none met the customer's performance requirements. The rheology needed to be optimized, specified within a narrow range, and proven stable. R&D chose to optimize other characteristics at the same time.

### Advantages

Good resistance to radiation and sterilization processes

Excellent adhesion to, and compatibility with, plastics

Dampens motion

# CASE STUDY

## Solution

### FLUOROCARBON GEL 896-V1

A tacky, high-viscosity synthetic hydrocarbon grease

- Narrow viscosity specification
- Good resistance to radiation and other sterilization processes
- Excellent adhesion to, and compatibility with, plastics
- UV light fluorescence for easy inspection
- No oil separation
- Negligible volatility

## Results

This precision motion control gel was fully validated in the device. Furthermore, success has now been replicated in a new program involving design of a hand-held applicator for a very promising device. 896V1 has cemented its place as the first in a series of products which help MedTech design engineers reduce pain and improve lives.