

# Propylene Glycol Down-Packing Optimization Case Study



## EXECUTIVE SUMMARY

This case study delves into Lentus's partnership with Dow Chemical to down-pack and distribute propylene glycol products. The collaboration is marked by significant achievements, overcoming challenges, and positions Lentus as a reliable and efficient partner. Specifically, we focus on four key products:

- DOWFROST™ Heat Transfer Fluid
- DOWFROST™ HD Heat Transfer Fluid
- DOWCAL™ 200 Heat Transfer Fluid
- DOWFROST™ LC 25 Heat Transfer Fluid

## INTRODUCTION

In 2012, Lentus became a Master Distributor for Dow Corning Silicones, successfully distributing Dow silicone products to markets across North America. In 2016, Dow Chemical acquired Dow Corning. Through that process, Dow saw an opportunity for Lentus to play a pivotal role in down-packing and distributing Dow branded propylene glycol to those markets.

Lentus's capabilities of facilitating distribution in smaller quantities prompted the collaboration, whereas Dow's current process is geared towards larger-scale packaging. Lentus's ability to down-pack into sizes ranging from one-gallon bottles to 265-gallon totes positions us as a key player in fulfilling the unique demands of down-packing and distribution.

## CHALLENGE

Dow caters to large propylene glycol orders and is not in the business of down-packing into smaller sizes; however, they were receiving multiple requests for smaller orders. Dow lacked the necessary sales reach to establish a foothold for these smaller orders. Along with the Dow brand, Lentus emerged as a crucial solution provider to down-pack and distribute to the wholesale distribution market, addressing a distinct need that Dow acknowledged.

## OBJECTIVES

1. **Authorized Down-Packager of Dow Propylene Glycol:** Down-pack into 1-gallon bottles, 5-gallon pails, 55-gallon drums, and 265-gallon totes, solidifying our position as a trusted partner for Dow in providing customized solutions.
2. **Formulating Customized Solutions:** Develop the capability to blend deionized water and glycol to create varying concentrations (ranging from 25% to 70%) based on the customer's specific needs. Additionally, Lentus offers customization of DOWFROST™ products in different colors and blends according to customer preferences.
3. **Distribution to Wholesale Market:** Successfully down-pack and distribute propylene glycol to our well-established wholesale distribution market.

## SOLUTION

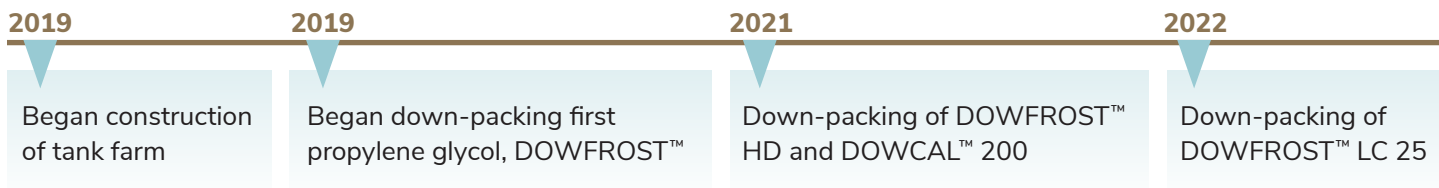
Through these strategic steps and comprehensive optimization measures, Lentus successfully addressed the down-packing process challenges, positioning itself as a reliable and efficient partner for taking Dow beyond to the wholesale distribution market with high-quality, customized propylene glycol products.

1. **Investment in Tank Farm:** Invested close to a half a million dollars in a tank farm, providing the necessary infrastructure for efficiently handling and processing propylene glycol products.
2. **Custom Food Grade Equipment:** Incorporated stainless steel equipment to ensure the compliance of Dow's product with food-grade standards, thus enhancing product quality and safety.
3. **Customization to Meet Market Needs:** Went above and beyond by customizing products to meet the specific needs and preferences of the market, ensuring flexibility and adaptability to varying customer requirements.
  - a. **Designed and Implemented a Formulating System:** Ability to formulate various concentrations of each propylene glycol-based heat transfer fluid. In addition to DOWFROST™ being further customizable by color.
  - b. **Establishment of Testing Lab:** Set up a dedicated testing lab to conduct thorough material and deionized water testing, ensuring the quality and consistency of the products.
4. **Deionized Water System:** Developed a deionized water system, utilizing it for the different concentrations needed.
  - a. **Quality Assurance Collaboration with Dow:** Worked closely with Dow's Quality Assurance (QA) team to ensure the deionized water met specified standards, emphasizing the commitment to higher quality and compliance with food-grade requirements.
5. **Efficient Production and Delivery:** Established efficient procedures enabling swift production and timely delivery to customers.
6. **Expansion into Wholesale Distribution Markets:** Leveraged extensive and well-established sales representatives and distributor networks to introduce propylene glycol products into wholesale distribution markets



## IMPLEMENTATION

**Timeline:** Initial discussions and planning to sell DOWFROST™ took less than six months.



## CHALLENGES FACED DURING IMPLEMENTATION

1. **Facility Modification:** Modified facility structures to accommodate the transportation and placement of the indoor storage tanks.
2. **Material Upgrade to Stainless Steel:** Replacement of all tank components with stainless steel to comply with food-grade standards.
3. **Filling Method Adjustment:** Tweaked the filling method to account for the heel and different formulations of the propylene glycol.

Despite these challenges, the implementation phase successfully navigated structural adjustments, equipment installations, and formulation modifications to establish an efficient and compliant down-packing system for propylene glycol products. The careful consideration of each milestone in the timeline contributed to the project's overall success.

## RESULTS

250,000 gallons of propylene glycol sold annually



*Lentus has always been a partner to Dow and has now added packaging and distribution of glycol-based heat transfer fluids. They have successfully expanded this business over the years, and we look forward to continued growth.*



**Dane Farver, Dow Account Manager**

## KEY TAKEAWAYS

- **Flexibility in Design and Space:** Anticipating the need for additional tanks and increased product volume, Lentus demonstrated foresight in designing a flexible space to accommodate expansions. This practice allowed for the seamless integration of new products like DOWFROST™ LC 25, showcasing the ability to adapt to evolving business requirements. Lentus is well-positioned to meet the demands of a growing market and respond effectively to changing customer needs.
- **Continuous Evaluation and Adaptation:** Being flexible, making adjustments to the blending method to accommodate different formulations, and addressing specific requirements of each market. These practices highlight a commitment to refining processes for efficiency and effectiveness.

## FUTURE IMPROVEMENTS

- **Process Improvements for Throughput:** Future improvements will focus on process enhancements to increase efficiency. This could involve optimizing the blending and down-packing processes, streamlining workflows, and leveraging technology or automation where applicable.
- **Continuous Training and Skill Development:** Investing in the continuous training and skill development of personnel involved in the down-packing process, contributing to a more skilled and adaptable workforce.

## CONCLUSION

The collaboration between Lentus and Dow has proven to be a resounding success, marked by significant achievements and transformative outcomes in the propylene glycol down-packing project. What began as a venture with a single product with two package types and 15 different mixtures has evolved into a diversified portfolio of four main products with four different packaging options and more than 100 different mixtures.

Lentus's pivotal role in providing Dow branded products the capability to be sold and distributed in smaller packages has not only met Dow's strategic needs but has also addressed a crucial requirement for Lentus's distributors.

Lentus's ability to respond swiftly and adeptly to market demands has proven invaluable in delivering smaller quantity and package sizes, filling a niche Dow wasn't equipped to support. Lentus's agility, responsiveness, and nimbleness in addressing specific customer needs have not only met but exceeded expectations. This successful partnership exemplifies how strategic collaborations can lead to transformative outcomes, benefiting both parties involved and meeting the evolving demands of the propylene glycol market.

**Lentus's ability to accommodate customization, coupled with its flexibility and speed in adapting to market needs and quick turnaround times, positions Lentus as the ideal partner.**

