

# DuPont™ Vespel® CR-6100

Pipeline Pump Components Boost Efficiency, Reliability and Safety.

## Application

The operator of a pipeline in the Southwestern U.S. was searching for a case ring material for pumps that would enable improved operating efficiency, increase equipment reliability and avoid the seizing or galling problems encountered with metal components.

The pumps were nine-stage horizontally split units made by Sulzer Bingham. The process fluid consisted of natural gas liquids (NGL) at ambient temperature.

## Challenges

**Tighter clearance.** Reducing clearance between the case ring and the hard metal surface of the impeller is a proven method of increasing pump efficiency, but it would increase the frequency of contact between the case ring and impeller.

**Process upsets.** Survival of case rings under run-dry conditions caused by process upsets is highly desirable.

## Solution

**Vespel® CR-6100 parts.** The operator replaced metal components with Vespel® CR-6100 parts for nine case wear rings along with center, throat and throttle bushings in one of its pumps. Clearance between the case rings and impeller OD was just 0.010 inch (254 µm), about half the API-specified clearance for metal components in such pumps.

## Benefits

**Higher efficiency.** The operator measured a 3% gain in pump efficiency over the pump manufacturer's performance test curve.

**Run-dry survival.** Shortly after installation of the Vespel® CR-6100 parts, a control problem caused the pump to run "blocked-in" with both suction and discharge valves closed for 38 minutes. After the pump was shut down and cooled, operators were surprised that the rotor still turned freely. They then replaced mechanical seals, checked alignment, and returned the pump to normal operation.



Photo source: Boulden Company, Inc.

Vespel® CR-6100 parts (arrow) survived under run-dry conditions

**Increased safety.** The operator reported that the continued operation of Vespel® CR-6100 parts during the process upset helped significantly in avoiding a release of hazardous material.

**Long life.** The pump continued in operation for the next six months, completing its planned production cycle. During this time, there was no noticeable change in pump vibration or efficiency. At the end of the cycle, the pump was disassembled to inspect the rotor (see photo). The Vespel® CR-6100 parts had survived the incident with no measurable wear, and there was no damage to the pump rotor.

**Extending the benefits.** Based on the proven 3% efficiency gain and run-dry capability of Vespel® CR-6100 parts in this particular situation, the operating company installed CR-6100 parts in the pipeline's eight additional pumps.

## Visit us at [vespel.com](https://vespel.com)

---

The information set forth herein is furnished free of charge, is based on technical data that DuPont believes to be reliable and represents typical values that fall within the normal range of properties. This information relates only to the specific material designated and may not be valid for such material used in combination with other materials or in other processes. It is intended for use by persons having technical skill, at their own discretion and risk. This information 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 conditions of use present no health or safety hazards and comply with applicable law. 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 DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract that is consistent with the DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative.

DuPont's sole warranty is that our products will meet our standard sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DUPONT SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR NON-INFRINGEMENT. DUPONT DISCLAIMS LIABILITY FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

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

Reference No. VPE-A10913-00-A1110 0422 CDP



[dupont.com](https://dupont.com)