



DuPont Fluoroproducts

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Att : Nancy Westcott

Nancy;

Thank you for allowing us to test the GoatThroat drum pump. I found it to be a very good pump for the transferring and dispensing of our solvents. I'm impressed with the pump's simplicity and reliability. I tested both of the pumps, nitrile and EPDM, in our most aggressive solvent, Vertrel® MCA Plus. I removed the tap faucet from the pump and placed both the tap and the drum seal in Vertrel® MCA Plus under full liquid immersion for 72 hours at room temperature. This was to allow the tap O-ring and washer full exposure to the solvent under the worst case. After exposure, I removed each part from the solvent and noticed that the tap O-ring had swelled to the point that it slide off the tap. I also noticed a discoloration of the solvent from water white to a straw or amber color. There was a substantial increase in weight of the seal and tap. This was evident in both pumps. I also performed a non-volatile residue analysis on the solvent to determine the percent of residue extracted which showed to be 0.30 %. Further analysis of the residue via FTIR showed it to be a plasticizer. After exposure to the solvent the seal and tap were placed in an oven at 110° F for approximately 1 hour to allow for out gassing of the solvent. The O-ring did return to its normal size and the tap was reassembled. I placed the reassembled pump into a 5-gallon pail of MCA Plus and dispensed ½ gallon of solvent. The pump worked very well with no leakage after dispensing. I allowed the pump to remain in the pail for 72 hours. I tried to repeat dispensing another ½ gallon of solvent but the drum seal had expanded to the point that it became dislodged from the pump body. I removed the pump and seal and allowed it to "air dry" for 24 hours. After the 24-hour period I tested the pump again by placing into the pail of MCA Plus. It worked fine with no leakage. I repeated the same test with the EPDM seal and the results were similar. Again, after air drying, the EPDM pump worked fine.

My recommendation for both the nitrile and EPDM version when pumping any Vertrel® solvent containing trans,1-2,dichloroethylene would be to remove the pump after dispensing. It looks like exposure to the vapor over a short period of time can have a negative effect on the drum seal. I believe that using the GoatThroat pumps with versions of Vertrel® that do not contain trans would be fully compatible.

If you have any questions, feel free to contact me at (302) 999-3023 or at [dan.i.diguglielmo@usa.dupont.com](mailto:dan.i.diguglielmo@usa.dupont.com). Again, thank you for allowing us to evaluate your pumps.

Sincerely;

Dan DiGuglielmo  
Vertrel® Specialty Fluids