

NORTHROP GRUMMAN



FIELD SERVICE BULLETIN

Product: All modules and Patara Lasers. Excludes Adamirus lasers due to water cooled LBO assembly.

Subject: Ethylene Glycol Coolant

Service Bulletin #: SVC-FSB-0005

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Category: Mandatory Preventive Improvement Information

Contact: ken.barkley @ngc.com

NOTICE

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Purpose:

CEO has performed testing with ethylene glycol mixed with distilled water and Optishield Plus as an alternate coolant for lasers and modules. Chemical and physical properties of the glycol tend to reduce the effects of corrosion and biological growth.

Ethylene glycol can be used in an attempt to extend the period of time between coolant changes, however the user needs to be aware of issues involved with using this coolant mix.

The ethylene glycol mix does not have as good of heat transfer capability as distilled water and Opti Shield Plus mixture. The chiller will need to be operated at a lower temperature to properly cool the diodes. Verify that the temperature is not in the range that will cause condensation inside the laser. The customer will also need to dispose of the used ethylene glycol in accordance with local regulations.

This bulletin only applies to chillers and filters recommended by NGCEO.

SUPPLIES NEEDED:

- A) Ethylene Glycol, 99% minimum. VWR part number E177-4 or equivalent , purchase from VWR International, Phone 800-932-5000, or www.vwr.com
- B) Optishield Plus™. Order from Opti Temp, Inc. 1500 International Drive, Traverse City, MI (USA) 49686. Phone 231-946-2931, or orders@optishield.net.
- C) Distilled Water

PROCEDURE:

- a. Mix the solution of 30% ethylene glycol, 10% Opti Shield Plus, and 60% distilled water by volume in a quantity sufficient to fill the chiller and closed loop cooling system.
- b. Clean and re-fill the laser cooling system per the owner's manual instructions except use the ethylene glycol solution. Verify that the filter being used is compatible with ethylene glycol. If the laser has become contaminated, the standard cleaning procedures using hydrogen peroxide still apply.
- c. Re-Optimize the laser system per owner's manual to compensate for the change in chiller temperature. Verify that the combination of lower temperature and humidity will not cause condensation inside the laser head. Use the dew point chart in the owner's manual as a reference.

MAINTENANCE FREQUENCY:

CEO has run test lasers with this mixture for as long as 6 months. It is crucial that the filter be inspected at least once a week for any signs of contamination such as color change or residue. The laser also needs to be monitored for signs of contamination such as power loss or increased current to reach the rollover point during optimization.