



Using PT2210 A/B to Restore Vacuum Integrity of Tools

Scope:

Vacuum leaks in high-temperature tools are an all too common occurrence. In spite of proper product selection and attention to detail when fabricating the tools, porosity is hard to eliminate completely. With laminated epoxy tools, mishaps, such as loss of vacuum during the tool compaction cycle, will usually result in a cured tool that leaks severely. Even tools with good initial integrity will sometimes develop leaks after long term heat cycling under autoclave pressure.

Many methods have been tried to seal such leaking tools, all involving considerable difficulty with minimal success. This is one method that has a high probability of working because of the properties of PT2210 A/B.

Discussion:

PTM&W's PT2210 A/B tool sealing material has proven to be an excellent material for the repair of leaking tools. This system has a very low mixed viscosity, which allows it to penetrate into the smallest leak paths. It has exceptionally high bond strengths so once it seals the leak, it has excellent adhesion. PT2210 A/B is extremely tough, for an epoxy, which allows it to withstand thermal cycling without cracking or crazing.

The following procedure explains how to successfully use PT2210 A/B to seal leaking tools.

Preparing the tool

- Repair any obvious cracks, voids or blisters on the working surface of the tool
- Thoroughly clean and lightly sand the edges, back and backup structure of the tool. Do not sand the working surface.
- Solventwipe the sanded surfaces to remove any residual sanding particles, dirt, oils, release agents, or other contaminants.
- Lay 3 or more plies of Style 7500 (or thicker) fiberglass tooling cloth on the working surface of the tool.
- Use normal procedures to bag and pull a vacuum on the tool surface.
- It is recommended to attach a vacuum gage on the tool surface and to have a cutoff valve between the bag and vacuum pump.

Applying PT2210 A/B

- Thoroughly mix PT2210 at a ratio of 100 parts A (resin) to 30 parts B (hardener) by weight.
- With vacuum applied to the tool surface, brush or flow-coat a uniform coating of PT2210 to all surfaces outside of the vacuum-bag area, including edges.
- Continue applying PT2210 in areas that show the material being consumed or sucked into leak areas.
- The vacuum gage reading should start to climb as the voids are sealed.
- Keep the vacuum pump on until the resin system gels.
- Check for vacuum integrity by turning off the vacuum pump and closing the valve between the pump and vacuum bag. Watch for vacuum gage drop. Make sure any drop is not caused by improper bagging.
- If the vacuum is excessive, reapply additional coats of PT2210 until the vacuum gage holds steady.

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Curing PT2210

- Let the tool sit overnight at room temperature with the vacuum applied.
- Remove the bagging materials and fiberglass cloth.
- Place the tool in an oven and heat to 150° F. for 4-6 hours to stabilize the system.
- Return the tool to service.

Note: PT2210 will soften and probably darken when exposed to higher temperatures. Darkening has no effect on the performance. The softening helps keep the porosity sealed because instead of cracking at high temperatures, it gets pliable.



PTM&W Industries, Inc.

10640 S. Painter Avenue Santa Fe Springs, CA 90670-4092
562-946-4511 800-421-1518 FAX: 562-941-4773
Visit Us At: www.ptm-w.com Send Questions To: info@ptm-w.com