

LORD® Maxlok™ Acrylic Adhesives

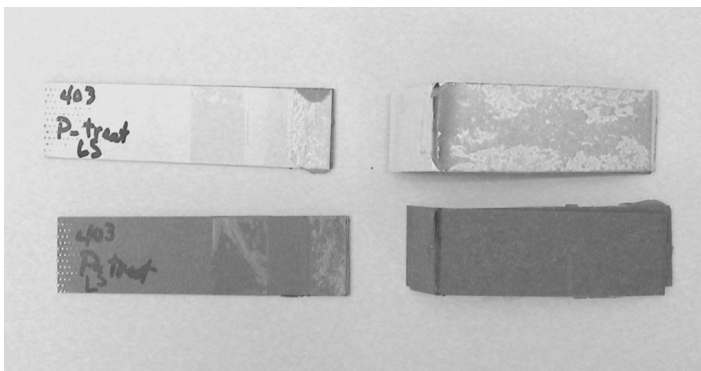
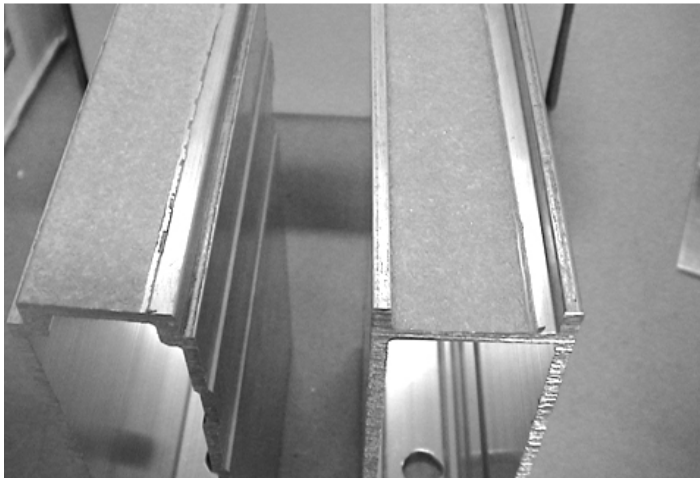
Troubleshooting Guide

This document is a guide to help troubleshoot and resolve common issues encountered when utilizing LORD® Maxlok™ acrylic adhesives.

There are only a few common causes of failures when working with LORD adhesives. These include dirty parts, exceeding the working time of the adhesive and a change in coatings on the metal part.

Ideal Failure:

The preferred method of failure for adhesive joints is cohesive failure. This failure mode indicates excellent adhesion to the substrates and any coatings, which are being bonded to, are well adhered to the substrate.



Cohesive failure

Cohesive failure can be identified by the residue of adhesive left on both substrates. With this failure mode, typically more than 2000 psi in shear pressure is generated and the substrate often breaks before achieving cohesive failure. Notice on the aluminum extrusions in the examples provided, the joint is full of adhesive with little squeeze out.

Dirty Parts:

While LORD acrylic adhesives are excellent at bonding through common surface contaminants such as the oils found on as received metals, there are some parts that should be cleaned before bonding.

Any loose dirt, rust or other foreign material should be removed before bonding. Typically a dry rag wipe will suffice. If a solvent is needed, an isopropyl alcohol wipe is recommended. Depending on the extent of the dirt/rust, scuffing or grinding may be required.

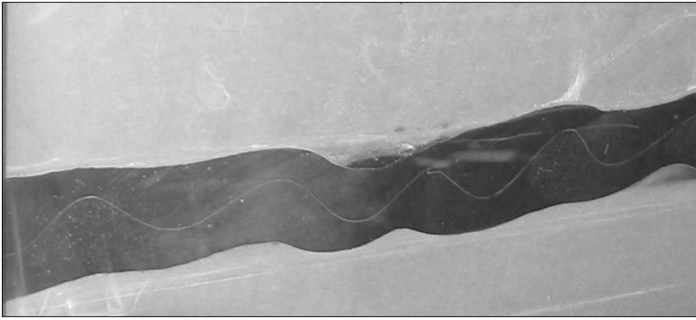


Failure mode - dirty parts

Exceeding the Working Time:

Working time is the amount of time from when the adhesive starts to travel down the mixing tip until the parts must be mated and clamped.

When the working time of the adhesive is exceeded, the adhesive will no longer wet out on one of the surfaces to be bonded. This will generally show up as a shiny, very smooth surface on the adhesive after disassembling the parts, which is in contrast to the rough surface seen on a cohesive failure. In the example provided, the bead has not been fully compressed.

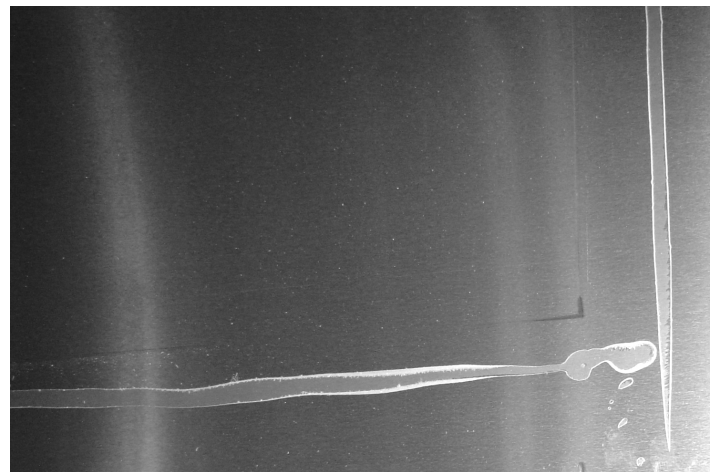


Failure mode – exceeding the adhesive working time

Coating Changes:

When bonding to a coating rather than to an uncoated metal, it is important to identify the coating and ensure that the supplier does not change coating without advanced notification. Parker Lord can assist with testing and screening of new coatings.

In the examples provided, a clear wash coat is present on the aluminum and the adhesive bonded better to the coating than the coating did to the metal. This can be identified by where the shine is taken off the material at the bead location and by where an edge can be felt along the parameter of the bondline by scratching with a finger nail. The example also depicts a case of under applying adhesive. A 1" wide bondline is ideal and the bead did not extend to the edge of the sheet.



Failure mode – coating changes

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