



Pumpable Sealer Between Flanges of Welded Structures - Steel Acceptance Criteria and Repair Procedures

1 Scope

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard provides the acceptance criteria and repair procedures for weld-through sealer(s) in automotive products for which GM is responsible for establishing or approving product design.

1.2 Applicability. This standard applies to any application where a weld-through sealer(s) capable of being pumped at ambient temperatures and intended for use in the body shop is used to seal body joints against water, dust and air intrusion.

The criteria established in this standard become mandatory when referenced in product release information or an approved Product Quality Standard (PQS) document. Deviations from any sealer criteria provided in this standard must be identified in product release information or an approved PQS document.

1.3 Usage. Weld-through sealed structures are considered satisfactory when they provide leak-free seams in identified water paths, and prohibit water intrusion to meet corrosion requirements for a required period. Corrosion requirements in structures containing "weld-through" sealer in a vehicle are varied in both type and magnitude and cannot be addressed by this standard. Therefore, while the sealer quality criteria of this standard are consistent with service requirements, they have been established specifically for use in process and product monitoring. Any attempted application of this document to other uses may lead to an erroneous result or conclusion.

1.4 Clarification. For clarification of this standard or editorial comments, email the GM Weld Council at: weld.council@gm.com.

Proposed changes to this standard must be presented to the Global Weld Council. To suggest a change to this standard, reference the "Procedure for Weld Standard Changes" on the Weld Council's web page.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

None

2.2 GM Standards/Specifications.

GMW15563

2.3 Additional References.

- GMS Operating Guidelines and Global Launch Manual, Section B4
- Procedure for Weld Standard Changes available on Weld Council's web page.

3 Requirements

3.1 General Acceptance Criteria.

3.1.1 Correct Material. The weld-through sealer applied shall be the material specified in the design release documentation and/or the Process Data Sheet for Sealer Application (see Appendix A, Figures A1 and A2). The product is non-conforming if incorrect material is being applied.

3.1.2 Substrate Condition. Cleaning of the faying surfaces is not required unless visibly contaminated by dirt, dust, corrosion, or other foreign matter. Preparation of the faying surfaces is not required unless specified in the material specifications.

3.2 Visual Acceptance Criteria.

3.2.1 Bead Location. The bead position along the flange, including the start and stop location are to be in agreement with the design release and/or the Process Data Sheet for Sealer Application (see Figures A1 and A2). Beads not properly located require the process to be adjusted to the specified start and stop locations as well as bead position along the flange. Bead position across the flange may be adjusted to achieve wet out and to minimize or eliminate excess material squeezed out of the joint (see Figures A4 and A5). Squeeze-out of weld-through sealant is not allowed in locating holes, fixing holes and tooling holes. For other types of holes, e.g., clearance holes, drain holes, etc., small amounts of squeeze-out can be accepted as long as functionality is not degraded and work environment and wash-off problems do not occur. Local squeeze-out towards the paint shop side of the flange shall be used to prevent pockets or undercuts where there is a risk of moisture intrusion between a paint shop seal and a weld-through sealant. Missing or mislocated beads cause the product to be non-conforming.

3.2.2 Wet Out. Wet out is defined as the “footprint” of sealer surface area on each of the flanges in a joint the sealer covers. It is required that both flange surfaces exhibit evidence of sealer contact (flattening of the dispensed bead) after separation. Actual transfer of sealer during this separation may or may not occur (see Figure A5). On flange surfaces that do not exhibit some evidence of sealer “footprint” on both flanges, the process is to be adjusted to eliminate the condition (see Figure A4).

3.2.3 Wet-Out Width. The wet-out width is to be a minimum 7 mm wide to a maximum of 100% of the flange width (see Figures A3 and A5). It is to be measured on the bead application flange surface at the narrowest place. If the wet-out width is less than 7 mm at the narrowest place, then the bead is to be adjusted to eliminate the condition.

3.2.4 Voids, Skips or Interruptions. Any voids, skips or interruptions in sealer bead applications cause the product to be non-conforming.

3.3 Measurable Acceptance Criteria. Not applicable.

3.4 Disposition/Repair Procedure.

3.4.1 Disposition. All known and suspect product with non-conforming sealer applications must be repaired. Refer to Appendix B - Table B1 to determine when a weld-through sealer application is non-conforming. When required, sealer applications shall be repaired according to the procedures specifically authorized by the appropriate Product Engineer.

3.4.2 Repair Procedure. Beads that are non-conforming with this standard can be repaired with suitable methods, e.g., placement of a new bead of sealer conforming to this standard, and/or application of paint shop seal.

4 Manufacturing Process

4.1 Process Control. The welding source is responsible for establishing practices and test methods to assure that the criteria of this standard are met and are consistent with the GM Joining and Dispense Process Control Procedure, GMW15563.

4.2 Sealer Bake Control. The painting source is responsible for establishing practices and test methods to ensure that the cure and/or post-cure cycle criteria are met and are consistent with the applicable material specifications.

5 Notes

5.1 Glossary.

Faying Surfaces: Pre-bonded pair of close-fitting surfaces that are to be connected.

Product Quality Standard (PQS): Measurable requirements for product characteristics which, when satisfied, ensure the product meets internal and external customer requirements. (Refer to GMS Operating Guidelines and Global Launch Manual, Section B4.)

5.2 Acronyms, Abbreviations, and Symbols.

BFO	Bill of Material Family Owner
BOM	Bill of Material
MPD	Master Process Document
PQS	Product Quality Standard

6 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

GMW16536

7 Release and Revisions

This standard was originated in February 2011. It was first approved by the Global Weld Council in July 2011. It was first published in August 2011.

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1	AUG 2011	Initial publication.