

CATERPILLAR: CONFIDENTIAL YELLOW TECHNICAL INFORMATION - YOU SHALL OBTAIN PERMISSION FROM THE CONTENT OWNER AND ESTABLISH THAT THE PERSON RECEIVING THE INFORMATION HAS THE NEED TO KNOW PRIOR TO SHARING THIS INFORMATION WITH ANYONE INSIDE OR OUTSIDE OF CATERPILLAR.

1.0 SCOPE

This is a multiple variation specification (several classifications) that governs metallic material substitution and deviation. The assigned classification is defined by the effect the substitute material or deviated material may have on subsequent manufacturing processes. This specification also describes the process by which suppliers shall request the use of substitute materials or deviated materials in place of the print designated 1E specification material.

2.0 SPECIFICATION DESIGNATIONS

2.1 Figure 1 defines the classifications which are based on impact to processing and engineering properties.

Current Specification Designations	Former Specification Designations	Applications
1E2349A	1E2349 Type A	Substitute materials which do not affect engineering properties or manufacturing processes such as machining, welding, forming, heat treatment, etc.
1E2349B	1E2349 Type B	Substitute materials which may affect manufacturing processes, but which provide engineering properties equivalent to the specified 1E material.
1E2349C	1E2349 Type C	Deviated materials which may affect the performance of certain components, require thorough analysis, and approval.

Figure 1

2.2 Many 1E material specifications contain an article that lists substitute materials (1E2349A or B) or deviated materials (1E2349C). These substitute or deviated materials shall be processed according to the classification assigned in the 1E specification. However, these lists are not comprehensive, and industry standard grades or other 1E material specification grades can be used.

2.2.1 Industry standard grades or other 1E material specification grades that are not listed, but conform to all qualifying specification and 1E material specification requirements, shall be processed as 1E2349A. These materials shall be considered qualified to the 1E material specification.

2.2.2 National Industry standard grades or other 1E material specification grades that are not listed and do not conform to all qualifying specification and 1E material specification requirements shall be processed as 1E2349C and shall be considered deviated material.

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MATERIALS APPLICATION - SUBSTITUTE	DATE 15 DEC 2015	CHG NO 11	NUMBER 1E2349

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2.3 Where patterns or dies are not available for castings and forgings, 1E2349C deviations shall be used to authorize machining and/or fabrication of the part from round, flat, tubing, etc.

3.0 APPROVAL PROCEDURE

3.1 Each classification requires different degrees of approval (see Figure 2). If it is unknown whether parts will arrive at Caterpillar in the purchased finished, semi-finished, or rough condition, the parts shall be considered Caterpillar worked.

Designations	Approval for Rough or Caterpillar Worked Parts	Approval for Purchased Finished Parts
1E2349A	No formal authorization request necessary.	No formal authorization request necessary.
1E2349B	Initiate approval process with local dispositioning facility.	No formal authorization request necessary.
1E2349C	Initiate approval process with Global Supply Network Division (GSND).	Initiate approval process with Global Supply Network Division (GSND).

Figure 2

3.1.1 Suppliers are not required to request approval to use 1E2349A substitute materials. National Industry standard grades or other 1E specification materials that are not listed but conform to every qualifying specification and 1E specification requirement shall be processed as 1E2349A and shall be considered qualified to the 1E specification material.

3.1.2 Suppliers shall request approval to use 1E2349B materials for Caterpillar Worked Parts from the local Caterpillar Dispositioning Facility. The appropriate electronic communication and documentation shall be used. Suppliers are not required to request approval to use 1E2349B substitute materials for purchased finished parts.

3.1.3 Suppliers shall request deviation approval to use 1E2349C materials for Caterpillar Worked Parts and purchased finished parts from GSND. The appropriate communication and documentation shall be used. The deviation documentation shall be submitted for each part made from the 1E2349C deviated material. Deviations shall be limited in duration and occurrence. Therefore, 1E2349C materials shall not be used as permanent substitutions.

3.1.4 Approvals for material substitutions, other than metallic materials, are not governed by this specification, but may be obtained by contacting GSND.

4.0 ADDITIONAL REQUIREMENTS

Mixing of different grades of material in the same lot or container is not permitted.

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5.0 DEFINITIONS

Alternate Material Referenced on Part Drawings	Material(s) which can be used in place of the primary material designated in the Material Block of the part drawing.
Caterpillar Worked Parts	A part that undergoes a subsequent manufacturing process (e.g., machining, heat treat, forming, welding, plating, etc.) by Caterpillar at the part drawing level or in a higher level drawing.
Deviated Material	<p>A specific lot of material that does not conform to the specified 1E specification material and has been approved for use in conformance with local and corporate deviation procedures.</p> <p>This term also applies to materials that are not listed as substitute materials or are listed as 1E2349C substitutes in the 1E specification material "Substitute Materials" article.</p>
Dispositioning Facility	Applies to wrought steel only. Dispositioning facilities are responsible for managing 1E2349A and 1E2349B substitutions. Refer to Figure 5 in 1E1861 for the appropriate Caterpillar dispositioning facility contact information.
Purchased Finished Parts	A part that does not undergo a subsequent manufacturing process (e.g., machining, heat treat, forming, welding, plating, etc.) by Caterpillar at the part drawing level or in a higher level drawing.
Quality Requirements	Quality requirements can be found in the 1E material specification or the qualifying specifications and may include but are not limited to approved mill, caster class, reduction ratio, mechanical properties, grain size, cleanliness, hydrogen control, etc.
Substitute Material	A material other than the 1E specification material that may not conform to the chemical composition requirements of the 1E material specification but fulfills the functional requirements. The application of a substitute material is governed by this specification. A substitute material differs from an alternate material that may be referenced on a part drawing. An alternate material can be used in place of the material designated in the material callout block of the part drawing and is not governed by this specification.

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6.0 REFERENCES

Abbreviations	1E0011
Wrought Steel – Approved Suppliers	1E1861

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