

SUBJECT 157

August 1, 2007

TO: Subscribers to UL's Standards Service and Certification Service for Gaskets and Seals

SUBJECT: CERTIFICATION REQUIREMENTS FOR GASKETS AND SEALS USED IN FLAMMABLE LIQUID HANDLING EQUIPMENT RATED FOR GASOLINE/ETHANOL BLENDS HIGHER THAN 15% ETHANOL

This bulletin announces an enhancement of UL's certification program for gasket and seal materials used in flammable liquid handling equipment. Currently, UL's certification program for gaskets and seals covers flammable liquid handling equipment applications where the concentration of ethanol does not exceed 15 percent. The test program in the attached certification document will be used to certify gasket and seal materials for use in flammable liquid handling equipment rated for gasoline/ethanol blends containing higher than 15 percent ethanol, such as E85. Additional performance requirements in the end product standard (such as UL 87) may also apply to the sealed parts in the end use application.

The Standard for Gaskets and Seals, UL 157 covers test procedures and performance criteria for the evaluation of nonmetallic gasket and seal materials for specific end-product applications. The provisions outlined in the attachment to this bulletin will be submitted to the 157 Standards Technical Panel (STP) for inclusion in that standard as part of UL's consensus standards development process. Until such time as UL 157 is revised to include these new requirements, the attached document will be used to certify gasket and seal materials for this application. The requirements in the attached certification document may be superseded by future published revisions to UL 157 and in that case the certification requirements will be withdrawn at that time.

Questions regarding interpretation of requirements should be directed to the responsible UL Staff in the office where you normally conduct engineering investigations.

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**CERTIFICATION REQUIREMENTS
FOR
GASKET AND SEAL MATERIALS USED IN GASOLINE/ETHANOL BLEND APPLICATIONS
HIGHER THAN 15 PERCENT ETHANOL**

Gaskets and seals shall be evaluated in accordance with the procedures specified in UL 157 (Par. 11 for Volume Change, Extraction, Tensile Strength and Elongation; Par. 7 for Compression Set) and the following table:

Test media	Time and temperature	Properties required	Requirements
Gasoline/ethanol blends higher than 15% ethanol (static applications ^a)			
CE25a and CE85a (tests conducted separately with each test media)	1000 h at 23 ± 2°C	Volume change	Minus 1 to plus 40 percent
	1000 h at 23 ± 2°C	Extraction	Maximum of 10 percent weight loss
	1000 h at 23 ± 2°C	Compression set (+)	Maximum of 35 percent
Gasoline/ethanol blends higher than 15% ethanol (dynamic applications ^b)			
CE25a and CE85a (tests conducted separately with each test media)	1000 h at 23 ± 2°C	Tensile strength	Minimum of 60 percent of as-received
	1000 h at 23 ± 2°C	Elongation	Minimum of 60 percent of as-received
	1000 h at 23 ± 2°C	Volume change	Minus 1 to plus 40 percent
	1000 h at 23 ± 2°C	Extraction	Maximum of 10 percent weight loss

a - Static applications are those where the seal is not subject to movement.

b - Dynamic applications are those where the seal is subject to movement.

(+) - Compression set evaluation shall be conducted in accordance with Par 7 of UL 157 with the exception that the 1000 h immersion at 23 ± 2°C replaces the 70°C oven exposure.

CE25a - a mixture, by volume, of 75 percent ASTM Fuel C and 25 percent aggressive ethanol as defined in SAE J1681.

CE85a - a mixture, by volume, of 15 percent ASTM Fuel C and 85 percent aggressive ethanol as defined in SAE J1681.