

The ASTM F2179 Candle Safety Standard for candle glass has been updated to better clarify how the standard is to be used. The update is now available from ASTM. The instructions on how to purchase the needed materials are detailed on the pages that follow.



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The ASTM Standard for candle glass is not a testing method to be used well after the glass is made; it is a controlled process to be used and fully documented by glass manufacturers during every production run of the glass they wish to qualify as safe for candles. Compliance to the standard for a batch of candles cannot be established by testing a few samples from a glass run done in the past. Instead the candle maker must be certain that the glass manufacturer has followed the ASTM process in making the glass and maintained the detailed documentation of no failures while performing that process for every glass batch.

The documentation that establishes compliance is created by following the sampling method in C-224 (including the Military Sampling Process – see page 4 below) to pull glass samples during the glass manufacturing batch run (controlled sampling across molds and the annealing run). Those samples are then examined using a polariscope per C-148 and tested for thermal shock resilience per C-149. To be suitable for use as a candle vessel, there cannot be any failures of any samples in either test.

Every batch of glass must be tested per this F-2179 process, not just the first batch. If any glass in a run fails, then everything that went through annealing in the Lehr during that batch (using the same Lehr settings) fails. The annealing process must be checked and corrected until a batch is produced with zero failures.

Candle manufacturers/retailers who have a few pieces of glass tested either in advance or from a subsequent glass shipment are not satisfying the ASTM requirement for candle glass compliance (although this may be reassuring as a double check of the glass supplier's discipline). Only compliance to the procedure by the glass manufacturer during actual production runs of glassware does that. Tracing finished glass back to the particular batch/mold and obtaining the specific documents for that batch is not possible with large glass producers. Consequently, the candle maker must obtain assurance from the glass maker that they always follow the ASTM Standard when producing a particular style of glassware.

To buy the standards, go to [www.astm.org](http://www.astm.org)

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ASTM F2179-20 Standard Specification for Annealed Soda-Lime-Silicate Glass Containers That Are Produced for Use as Candle Containers

Active Standard(Latest Version) Last Updated March 19, 2020

This specification is specifically for soda-lime-silicate glass containers that are intended to be used as filled candle containers. This specification does not apply to other glass accessories used for candles, such as votive holders, hurricanes, and glass holders used with free-standing candles. The glass manufacturer or glass secondary processor is responsible for the compliance of the product and maintaining documentation of test results during the manufacturing process.

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developed F2179, Specification for Annealed Soda-Lime-Silicate Glass Containers That Are Produced for Use as Candle Containers. F2179 establishes test and temper specifications for the proper annealing of glass containers and candles, as well as thermal shock requirements. The use of glass containers that do not meet the requirements of F2179 will make fires due to an imperf...

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Active Standard(Latest Version)

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ASTM C224-78(2014) Standard Practice for Sampling Glass Containers

Active Standard(Latest Version) Last Updated October 1, 2014

This practice covers the sampling of glass containers (for example, bottles, jars, and so forth) for performing such tests as mechanical strength, dimensions, and other measurable characteristics, and for visual examination.

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You will also need the Military Standard Sampling Procedure for Inspection, including the table below.

The entire procedure can be downloaded at no cost at: <https://variation.com/wp-content/uploads/standards/mil-std-105e.pdf>

MIL STD 105D																									
TABLE I Sample size code letters				TABLE II-A Single sampling plans for normal inspection (Master table)																					
Lot or batch size	General inspection levels			Sample size code letter	Sample size	Acceptable Quality Levels (normal inspection)																			
	I	Level Normally Used II	III			0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25		
						Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re	Ac Re
2 to 8	A	A	B	A	2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	0 1	↓	↓	1 2	1 2			
9 to 15	A	B	C	B	3	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	0 1	↓	1 2	1 2	2 3			
16 to 25	B	C	D	C	5	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	0 1	↓	1 2	2 3	2 3	3 4			
26 to 50	C	D	E	D	8	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	0 1	↓	↓	1 2	2 3	3 4	5 6			
51 to 90	C	E	F	E	13	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	1 2	2 3	3 4	5 6	7 8			
91 to 150	D	F	G	F	20	↓	↓	↓	↓	↓	↓	↓	↓	0 1	↓	↓	1 2	2 3	3 4	5 6	7 8	10 11			
151 to 280	E	G	H	G	32	↓	↓	↓	↓	↓	↓	↓	0 1	↓	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15			
281 to 500	F	H	J	H	50	↓	↓	↓	↓	↓	↓	0 1	↓	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22			
501 to 1200	G	J	K	J	80	↓	↓	↓	↓	↓	↓	↓	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑			
1201 to 3200	H	K	L	K	125	↓	↓	↓	↓	0 1	↓	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑	↑			
3201 to 10000	J	L	M	L	200	↓	↓	↓	0 1	↓	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑	↑	↑			
10001 to 35000	K	M	N	M	315	↓	↓	↓	↓	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑	↑	↑	↑			
35001 to 150000	L	N	P	N	500	↓	↓	0 1	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑	↑	↑	↑	↑			
150001 to 500000	M	P	Q	P	800	↓	0 1	↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑	↑	↑	↑	↑	↑			
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Ac Acceptance number.  
Re Rejection number.



Use first sampling plan below arrow. If sample size equals, or exceeds, lot or batch size, do 100 percent inspection.



Use first sampling plan above arrow.