

Subject 982

October 26, 2018

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Motor-Operated Household Food Preparing Machines, UL 982, are being proposed for preliminary review and comment only:

1. Input Test

2. Soup Making Blenders

COMMENTS DUE: December 10, 2018

This proposal is for review and comment only (no ballot at this time). Please note that comments on a preliminary review document will not receive a response from the proposal author through CSDS. Instead, the proposal author will be asked to review the comments and adjust the proposals and/or supporting rationale as the author determines to be appropriate. The preliminary review process is an informal mechanism that provides authors with the opportunity to refine their proposals before they advance to the next stage in UL's standards development process.

In some cases, the author of the proposals may choose to discontinue them. In this case, the author need not do anything after preliminary review has ended. Normally, the next step in the process is the more formal STP ballot and stakeholder review process. Only comments posted during the STP ballot and stakeholder review process will be provided with a response in CSDS.

UL's goal is to have no interest category comprise more than one-third of the STP membership balance. To improve the current balance for STP 982, UL is looking for participants in the AHJ, Consumer, General, Government, Supply Chain, and Testing and Standards interest categories. Definitions for these interest categories are available on the Standards STP Internet site:

<http://ulstandards.ul.com/develop-standards/participation/interest-categories/>

If you are interested in applying for STP 982 membership or are aware of potential candidates for this STP, please contact the STP Project Manager, name@ul.com.

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

1. Input Test

RATIONALE

Proposal item submitted by: Michelle Andersen, UL LLC

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An STP Working Group was created to review the maximum normal load requirements and establish the time for taking the input measurements for the various product types in order to provide more consistency in the application of the requirements. This proposal is a result of work done by that working group. In some cases the working group recommended using an average input under load instead of specifying a particular time for taking an input measurement.

The product specific maximum normal load requirements in Section 34 were reformatted to separate the Input Test Load and Normal Temperature Test Load. The working group also suggested revisions to the normal load conditions to address constructions not identified or clarify the loading requirements.

When products are recommended for use outside of their normal mode of operation, such as a blender for coffee or grain grinding, this situation is somewhat covered by last sentence of 34.1.11, but 34.1.16 is proposed to clarify testing to represent the additional load recommendations. The requirement in 34.1.10.1 is proposed to be added based on a similar requirement in UL 763 in order to provide guidance on how to determine when constant temperatures have been achieved. The requirement in 34.1.17 is proposed to be moved from the individual product types to the general requirements for consistency in the force to be applied to a food pusher while processing food during the input and temperature tests.

A number of product definitions are proposed to clarify the differences between certain products, such as a blending mixer, food mixer and a liquid mixer. Consideration was given to definitions existing in other international safety standards.

The proposed requirements are intended to represent current practice or clarify practice where not previously documented.

See also the UL 982 Certification Requirement Decision for the Input Test on Blenders dated January 25, 2008. The method proposed in 34.3.1 was preferred by the working group and the difference in the method was found to have minimal effect on the input reading.

Clauses 34.2 - 34.27 have been extensively revised and relocated as part of this proposal. In order to help facilitate the review, paragraph numbers in parentheses show where the text for the new clause/paragraphs was derived. If a paragraph was derived from an existing paragraph, the lined-out text and underlined text show what has changed from the existing paragraph.

The requirements for coffee mills and grinders in 34.16 were modified to incorporate the requirements for grain mills and grinders from 34.27 and new requirements for spice mills and grinders. This was done to simplify the requirements for mills and grinders that are recommended for multiple uses.

Requirements for normal operation of auger juicers are also proposed to align with centrifugal juicers. The personal injury requirements for these products will be addressed in the Feed Opening Proposal by the general feed and discharge opening requirements proposed for relocation to Clause 25. There are not specific markings for meat grinders and pasta extruders, but the instructions for auger juicers should also be similar to these products due to the similarity in hazard presented by the auger. Therefore, auger juicers are proposed to be added to the specific pasta extruding attachment instructions required by 73.30.

Editorial revisions are also included based on the UL Style manual regarding the use of "shall" only for required product attributes in a standard and the use of the phrase "is to be" or "are to be" for all situations other than required product or system attributes. For example: "the product shall be constructed of..." or "maximum temperature rise shall not exceed..." "During this test, the unit is to be mounted..." or "Spacings are to be measured...."

PROPOSAL

4.6.1 AUGER JUICER – An appliance intended to juice various fruits and vegetables by use of an auger to crush the food load and a strainer to separate the juice from the pulp. An auger juicer may also be referred to as a slow juicer.

4.7.1.1 BABY FOOD CHOPPER – A food chopper intended to chop cooked meat or vegetables in small quantities for immediate consumption as indicated in the operating instructions. A chopper also intended for processing other food loads, such as cheese, nuts or raw meat or vegetables, is considered a food chopper.

4.7.1.2 BABY FOOD GRINDER - A meat grinder intended to grind cooked meat or vegetables in small quantities for immediate consumption as indicated in the operating instructions. A grinder also intended for processing raw meat is considered a meat grinder.

4.7.2 BLENDING MIXER - An appliance intended to pulverize solids, such as ice, vegetables or fruit, and to combine them into a blend, or to merge liquids and solids into a blend. A blending mixer may also be referred to as a blender.

4.9.1 CENTRIFUGAL JUICER – An appliance intended to juice various fruits and vegetables by use of a grating disc mounted within a straining basket that spins at high speed so that the juice is filtered through the strainer and the pulp is discharged via a discharge opening at the top of the straining basket.

4.11 COFFEE, SPICE, OR GRAIN GRINDER – A motor operated appliance that crushes coffee beans, spices, or grain into a powder by passing them through a system of closely fitting wheels or cones having serrated surfaces. This appliance will have an intake hopper and a discharge container.

4.12 COFFEE, SPICE OR GRAIN MILL – A motor operated appliance that chops coffee beans, spices, or grain into a powder by means of a system of blades rotating at high speed.

4.21.1 FOOD CHOPPER – A food processor without a slicing or shredding blade and without feed or discharge openings.

4.21.2 FOOD MIXER – An appliance intended for mixing food ingredients in a bowl with beater(s), dough hook(s), or a whisk. It may be hand-held or stand supported.

4.21.3 FOOD PROCESSOR – An appliance provided with various chopping, mixing, slicing and shredding blades that processes food by means of rotating blades within a container. A food processor may have additional blades intended for mixing dough. A food processor has a feed chute and may have a discharge opening.

4.25.1 LIQUID MIXER – An appliance with an exposed rotating shaft intended to mix liquid ingredients within a provided cup. This is also known as a drink mixer or spindle type mixer.

4.27.1 MEAT GRINDER – An appliance consisting of an auger and a feed tube intended for grinding pieces of raw meat into ground meat.

4.30.1 REAMER JUICER – An appliance intended to juice citrus fruits by pushing the fruit halves against a rotating reamer cone.

4.31.1 SLICER – An appliance with an exposed rotating slicing blade and a food carriage intended for slicing meats and cheeses.

4.35.1 VEGETABLE SHREDDED/SLICER – An appliance with various slicing and shredding attachments in the form of discs or cones intended for slicing and shredding vegetables and cheeses. A cheese grating attachment may also be provided. A vegetable shredder/slicer has a feed chute and may have a discharge opening.

4.35.2 WAND-TYPE MIXER – A hand-held appliance with a momentary contact switch and a guarded rotating cutting blade on the bottom. This is also known as a wand mixer, hand blender, or immersion blender.

33.1 The measured input in watts or amperes to an appliance shall not exceed the marked rating by an amount greater than the deviation shown in Table 33.1 when the appliance is operated under a condition of maximum normal load as described in 34.1.11 – 34.27 26. Unless otherwise indicated, the input is the maximum input while processing the load specified, but disregarding the initial starting current.

33.2 If an appliance is provided with various functional attachments, or attachments are sold separately for use with the appliance, the marked electrical rating is determined per 33.1 when the appliance is operated with the attachment which results in the highest input. See 68.4 and 71.4.

33.3 The measured input in watts or amperes to an appliance may be less than the marked rating by an amount greater than the deviation shown in Table 33.1 if the temperature rises indicated in Table 34.1 are not exceeded when the appliance is subjected to an additional temperature test when loaded to nameplate rating (amperage or wattage). The duty cycle is to be the same as that established for the normal temperature test (34.1.11 – 34.27 26). For multifunction appliances, the duty cycle is to be that which results in the highest temperatures during the normal temperature test, including the main function(s) of the appliance and any functional attachments:

a) Recommended for use at the highest speed, or

b) Resulting in higher inputs than functions operating at the highest speed.

~~If an appliance is provided with various functional attachments, the duty cycle shall be that which results in the highest temperatures. Multispeed appliances are to be operated at the highest speed for this test. During the conduct of this test, the appliance is to be connected to a 120 V, 60 Hz supply circuit. If it is not possible to artificially load the appliance to its marked rating (that is – due to motor stalling), the appliance is not considered to comply with the intent of the input test. If the load is to be increased by other than a food load, it is to be applied gradually (normally not over 5 seconds) before considering the on sequence of the duty cycle to have started.~~

34.1.10.1 With reference to those tests that are to be continued until constant temperatures are attained, thermal equilibrium is considered to exist when three successive readings taken at intervals of 10 percent of the previously elapsed duration of the test, but not less than 5-minute intervals, indicate no change.

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34.1.11 Maximum normal load is considered to be that load which approximates as closely as possible the most severe conditions of normal use. It is not a deliberate overload except as the conditions of actual use are likely to be somewhat more severe than the maximum load conditions that are recommended by the manufacturer of the appliance. Test loads that have been found to be close approximations of the most severe conditions of normal use are indicated in 34.2 – 34.27 26 for some common forms of appliances. However, appliances having features not contemplated in these test procedures may be tested as necessary to meet the intent of these requirements. See 34.1.16.

34.1.15 Where the operating time under maximum normal load, as defined in 34.2 – 34.27 26, is limited to a number of cycles or a period of time, the temperatures ~~shall~~ are to be monitored during the specified operating time only. Temperatures ~~shall~~ are to be monitored during the "off" time between cycles, but any temperature overshoot following the deenergizing of the appliance after the completion of the specified operating time or last cycle ~~shall~~ is to be neglected ignored.

31.1.16 An appliance recommended to perform functions outside of the normal anticipated mode of operation for that appliance as defined by the manufacturer's instructions, such as a blender recommended for grinding coffee or grain, shall be subjected to additional normal load conditions to represent these functions as specified in 34.1 – 34.26.

34.1.17 For products with a food pusher, the pusher is to be applied with a force of 1.1 lbf (5 N). If additional force is required to process harder foods, the force is to be 2.2 lbf (10 N). If this force is not adequate to process the food, the force is increased to the minimum force needed to process the food load.

Note from the STP Project Manager: Clauses 34.2 – 34.27 have been extensively revised and relocated as part of this proposal. In order to help facilitate the review, paragraph numbers in parentheses show where the text for the new clause/paragraphs was derived. If a paragraph was derived from an existing paragraph, the lined-out text and underlined text show what has changed from the existing paragraph.

34.2 Food mixers

34.2.1 The average input to a food mixer is to be measured with the appliance loaded as indicated for the temperature test, while operating for time, T, as defined in 34.2.2 at the setting or combination of settings resulting in the maximum power consumption, including any momentary boost speed settings. The input is to be measured with the various mixing attachments, such as beaters and dough hooks, intended for use with the mixer. A household-type food mixer (a mixer for mixing batter, whipping potatoes, and similar operations) is to be operated for a total of 15 minutes in the intended manner, involving all the different speeds provided by the appliance, and with a load material having such consistency or viscosity as to be generally representative of actual service conditions. The appliance is to be operated through the entire sequence of speeds (increasing from the lowest speed to the highest speed and then decreasing back to the lowest speed) in accordance with the following:

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$$T = \frac{15 \text{ min}}{2N - 1}$$

in which:

T is the time at each speed and

N is the number of speed settings.

34.2.2 (34.2.1) For the temperature test, a household type food mixer (a mixer for mixing batter, whipping potatoes, and similar operations) is to be operated for a total of 15 minutes in the intended manner, involving all the different speeds provided by the appliance, excluding any momentary boost speed settings, and with a load as specified in 34.2.3. The mixing attachment resulting in the highest input is to be installed for the test material having such consistency or viscosity as to be generally representative of actual service conditions. The appliance is to be operated through the entire sequence of speeds (increasing from the lowest speed to the highest speed and then decreasing back to the lowest speed) in accordance with the following:

$$T = \frac{15 \text{ min}}{2N - 1}$$

in which:

T is the time at each speed, and

N is the number of speed settings.

34.2.3 (34.2.2) Dry 50 – 80 core sand is to be used as a the load for the type of food mixer mentioned in 34.2.1. The beater blades are to extend as nearly as possible to the bottom of the mixing bowl, and the depth of the level sand is to be such as to cover approximately 80 percent of the effective blade length when the blades are stationary. If this quantity of sand is enough to stall the blades of a multiple-speed machine on the low speed, just enough sand may be removed to permit motion of the blades for the low-speed operation only. If the appliance is provided with a whisk attachment, a water load is to be used instead of the sand load.

34.2.4 (34.2.3) If a mixing bowl is not provided by the manufacturer, a bowl with an approximate height of 5-1/8 inches (13.0 cm) and an approximate inner diameter of 6-3/4 inches (17.2 cm) at the top tapering down to approximately 6.0 inches (15.2 cm) at the bottom is to be used. The inner surface of the bowl is to be smooth and the bottom is to blend smoothly.

34.3 Blending mixers

34.3.1 A blending mixer of the type intended to reduce a combination of solid vegetables or fruit and a liquid to a blend of the two (a blender, emulsifier, or liquidizer) is to be tested as follows: The appliance is to be subjected to 10 cycles of operation, with each cycle consisting of 3 minutes of operation followed by a 1 minute off period. For each cycle, a single-speed mixer is to be loaded with a mixture of soaked diced carrots and water. The capacity of the mixer is to be determined in accordance with 34.3.2. The input to a blending mixer measurement is to be measured at recorded 30 seconds of operation when loaded as specified in 34.3.5 and operated at the setting or combination of settings resulting in the maximum power consumption, including any momentary boost settings. If the appliance has a fluctuating load, the input is to be the average input from 25 to 35 seconds of operation, after the first load cycle begins. If the appliance stalls at the beginning of any cycle, the obstruction is to be removed and the test continued. If it stalls while running, the obstruction is to be removed and the entire test restarted after the appliance has cooled to room temperature. If the appliance stalls more than twice while running, the results of the test are not acceptable. A multispeed mixer is to be tested at its highest and lowest speed in the manner just described, except that the load for the test at the lowest speed is to consist of water alone. The foregoing does not apply to any appliance intended for operation without liquid — such an appliance is to be given separate consideration, with the load and duty cycle selected in such a manner as to take into account the intended use.

Exception No. 1: If the construction of the blender is such that it cannot be operated for 3 minutes without being restarted, each cycle is to be run at the maximum cycle time of the blender unless the cycle is less than 1 minute. If the cycle is less than 1 minute, the blender is to be recycled to obtain 1 minute cycles.

Exception No. 2: If the blender is provided with a momentary contact switch with no means for locking it in the on position, each cycle shall consist of 1 minute of operation followed by a 1 minute off period.

34.3.2 (34.3.1, Sentences 1–4, Exception 1 and 2) For the temperature test, a A blending mixer of the type intended to reduce a combination of solid vegetables or fruit and a liquid to a blend of the two (a blender, emulsifier, or liquidizer) is to be tested as follows: The appliance is to be subjected to 10 cycles of operation, with each cycle consisting of 3 minutes of operation followed by a 1 minute off period. For each cycle, a single-speed mixer is to be loaded with a mixture of soaked diced carrots and water. The capacity of the mixer is to be determined in accordance with 34.3.2 34.3.5.

Exception No. 1: If the construction of the blender is such that it cannot be operated for 3 minutes without being restarted, each cycle is to be run at the maximum cycle time of the blender unless the cycle is less than 1 minute. If the cycle is less than 1 minute, the blender is to be recycled to obtain 1 minute cycles.

Exception No. 2: If the blender is provided with only operable via a momentary contact switch with no means for locking it in the on position, each cycle is to consist of 1 minute of operation followed by a 1 minute off period.

34.3.3 (34.3.1, Sentences 6–8) If the appliance stalls at the beginning of any cycle, the obstruction is to be removed and the test continued. If it stalls while running, the obstruction is to be removed and the entire test restarted after the appliance has cooled to room temperature. If the appliance stalls more than twice while running, the results of the test are not acceptable.

34.3.4 (34.3.1, Sentence 9) A multispeed blending mixer is to be tested at its highest speed, excluding any momentary boost speed settings, and lowest speed in the manner just described, except that the load for the test at the lowest speed is to consist of water alone.

34.3.5 (34.3.2) The blending mixer capacity is to be determined by loading the mixer with a mixture of soaked diced carrots and water in the ratio of 2 to 3 by weight, with approximately half of the weight of carrots consisting of pieces having a maximum dimension of less than 1/2 inch (12.7 mm) and the remainder consisting of pieces having a maximum dimension between 1/2 and 3/4 inch (12.7 and 19.1 mm). The carrot pieces are to be soaked in water for 24 hours and drained before being weighed and added to the mixture. The mixture is then to be placed in the blender mixer container to the rated capacity of the container or the maximum amount recommended in the instruction material packaged with the blender, whichever is greater. The blending mixer is to be operated at its highest speed, excluding any momentary boost settings, at the rated voltage until the mixture is well blended. If spill-over of the mixture occurs while the mixer is running at its highest speed, then the amount of mixture present in the container prior to spill-over is the amount to be used in during the test ~~described in 34.3.1~~. If the mixture level is below the lip of the mixer container while the mixer is running at its highest speed, additional mixture is to be added until the mixture level reaches the lip of the mixer container. The amount of mixture remaining in the mixer container, after replacement of the cover, is the amount to be used in during the test ~~described in 34.3.1~~. Any spill-over that occurs due to the replacement of the cover is to be ignored.

34.3.6 (34.3.3) If a blender is provided with a tamper, the input and temperature test shall be conducted without the use of the tamper when processing the carrot/water load. If the blender is intended for processing dry loads, such as coffee or grains, and the use of the tamper is required to perform those functions, the tests shall also be conducted with that load as specified for the related appliance (coffee mill, grain mill, etc.) with a force of 1.1 lbf (5 N) applied to the tamper in continuous up and down strokes or circular motions as recommended by the instructions.

34.4 Liquid mixers

34.4.1 ~~The input is to be measured at 30 seconds of operation when loaded with water to the capacity specified in 34.4.3. If the appliance has a fluctuating load, the input is to be the average input from 25 to 35 seconds of operation. A liquid mixer is to be operated for 10 complete cycles, each cycle consisting of 3 minutes of operation with the maximum capacity water load, followed by a 1 minute idling period. During the idling period, the liquid container is completely removed from the driving mechanism. If adverse operation or abuse to the rotating drive coupling could occur during normal removal or replacement of the liquid container, the 1 minute period between water loads is to be with the drive coupling not rotating but with the motor running or the unit is to be deenergized if necessary to stop the rotation of the drive coupling. A liquid mixer so tested shall have operating instructions provided which describe this method of usage, that is, that the driver is to be stopped when removing or replacing the liquid container.~~

34.4.2 (34.4.1) For the temperature test, a A liquid mixer is to be operated for 10 complete cycles, each cycle consisting of 3 minutes of operation with the maximum capacity water load, followed by a 1 minute idling period. During the idling period, the liquid container is completely removed from the driving mechanism. If adverse operation or abuse to the rotating drive coupling could occur during normal removal or replacement of the liquid container, the 1 minute period between water loads is to be with the drive coupling not rotating but with the motor running or the unit is to be deenergized if necessary to stop the rotation of the drive coupling. A liquid mixer so tested shall have operating instructions provided which describe this method of usage, that is, that the driver is to be stopped when removing or replacing the liquid container.

34.4.3 (34.4.2) The liquid-mixer maximum capacity mentioned in 34.4.1 is to be the amount of water which completely fills the container with the unit operating at the highest speed setting if a multispeed motor is used. The container cover is to be removed when capacity is determined.

34.5 Juice extractors

34.5.1 The input to a reamer-type juice extractor is to be measured extracting juice from oranges which have been cut approximately in half. For the temperature test a reamer-type juice extractor is to be operated for 24 complete cycles — each cycle consisting of 1/4 minute of the actual extraction operation or its equivalent, to be followed by a 1/4 minute idling period with the motor on but without added load on the reamer.

34.5.2 For a reamer-type juice extractor provided with a momentary-contact switch, the motor is to be deenergized between extractions.

34.5.3 The input to a centrifugal fruit juice extractor is to be measured extracting the juice from celery and spinach. For the temperature test, a centrifugal type juicer for fruits and vegetables is to be operated juicing two bunches of celery, (1-3/4 lb or 0.8 kg per bunch minimum) after which it is to be cleaned and then immediately followed with the juicing of 4 lbs (1.8 kg) of spinach. The force applied when pushing food through the centrifugal fruit juicer is to be 1.1 lbf (5 N). If, during the operation of the unit, the juicer becomes so clogged that it begins to vibrate excessively, the appliance is to be turned off and cleaned. Then it is to be turned on and the juicing operation is to be continued until the celery and spinach are consumed.

34.5.1 Reamer juicers

34.5.1.1 (34.5.1) The average input under load to a reamer-type juicer extractor is to be measured extracting juice from one oranges which have been cut approximately in half. A force of 11.25 lbf (50 N) is to be applied to the orange half while juicing for 15 seconds.

34.5.1.2 (34.5.1) For the temperature test a reamer-type juicer extractor is to be operated for 24 complete cycles — each cycle consisting of 1/4 minute 15 seconds of the actual extraction operation or its equivalent, to be followed by a 1/4 minute 15 seconds idling period with the motor on but without added load on the reamer.

34.5.1.3 (34.5.2) For a reamer-type juicer extractor provided with a momentary-contact switch, the motor is to be deenergized between extractions.