



UL 82

STANDARD FOR SAFETY

Electric Gardening Appliances

This is a preview. Click [here](#) to purchase the full publication.

This is a preview. Click [here](#) to purchase the full publication.

UL Standard for Safety for Electric Gardening Appliances, UL 82

Ninth Edition, Dated August 31, 2017

Summary of Topics

This revision of ANSI/UL 82 dated May 14, 2021 is issued to clarify the application of test requirements to battery powered gardening appliances with respect to accessible parts and the mold stress test; [SA2.2](#)

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated January 15, 2021 and March 12, 2021.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

No Text on This Page



ANSI/UL 82-2021

1

UL 82

Standard for Electric Gardening Appliances

First Edition – March, 1973
Second Edition – February, 1974
Third Edition – May, 1977
Fourth Edition – January, 1986
Fifth Edition – December, 1991
Sixth Edition – June, 1994
Seventh Edition – June, 2008
Eighth Edition – August, 2011

Ninth Edition

August 31, 2017

This ANSI/UL Standard for Safety consists of the Ninth Edition including revisions through May 14, 2021.

The most recent designation of ANSI/UL 82 as an American National Standard (ANSI) occurred on May 7, 2021. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

COPYRIGHT © 2021 UNDERWRITERS LABORATORIES INC.

This is a preview. Click here to purchase the full publication.

No Text on This Page

CONTENTS

PART 1 – ALL GARDENING APPLIANCES

INTRODUCTION

1	Scope	9
2	Units of Measurements.....	9
3	References	9
4	Glossary.....	15

CONSTRUCTION

5	Components	19
	5.1 General	19
	5.2 Attachment plugs, receptacles, connectors, and terminals	20
	5.3 Batteries	21
	5.4 Boxes and raceways.....	21
	5.5 Capacitors and filters	21
	5.6 Controls	21
	5.7 Cords, cables, and internal wiring	22
	5.8 Cord reels	23
	5.9 Film-coated wire (magnet wire).....	23
	5.10 Gaskets, seals, and tubing	23
	5.11 Ground-fault, arc-fault, and leakage current detectors / interrupters	23
	5.12 Insulation systems	23
	5.13 Light sources and associated components.	24
	5.14 Marking and labeling systems.....	24
	5.15 Motors and motor overload protection	24
	5.16 Motor overload protection	26
	5.17 Overcurrent protection	26
	5.18 Polymeric materials	27
	5.19 Power supplies	27
	5.20 Semiconductors and small electrical and electronic components	27
	5.21 Supplemental insulation, insulating bushings, and assembly aids	27
	5.22 Switches	28
	5.23 Transformers.....	28
6	Frames and Enclosures	28
	6.1 General	28
	6.2 Metallic enclosures	29
7	Polymeric Enclosures	29
8	Handles.....	30
9	Accessibility of Moving Parts	31
10	Accessibility of Live Parts	32
	10.1 General.....	32
	10.2 Assembly screws	36
11	Mechanical Assembly	36
	11.1 General	36
	11.2 Appliances shipped partially disassembled	37
12	Protection Against Corrosion.....	38
13	Supply Connections	38
	13.1 Power supply cord	38
	13.2 Attachment plug	38
	13.3 Strain relief.....	39

This is a preview. Click here to purchase the full publication.

13.4 Bushings.....	39
14 Live Parts	39
15 Internal Wiring – Electrical Connections	40
15.1 General.....	40
15.2 Splices and connections.....	41
16 Electrical Insulation	41
17 Motors.....	42
17.1 General.....	42
17.2 Overtemperature protection.....	42
18 Switches and Controls	42
19 Lampholders.....	43
20 Capacitors	43
21 Printed-Wiring Boards.....	44
22 Spacings	44
23 Grounding	47
24 Rotating Parts	47
25 Controls – End Product Test Parameters.....	48
25.1 General.....	48
25.2 Auxiliary controls	48
25.3 Operating controls (regulating controls)	48
25.4 Protective controls (limiting controls)	49
25.5 Controls using a temperature sensing device	51

PERFORMANCE

26 General	51
27 Leakage Current Test	52
28 Starting Current Test.....	53
29 Continuity of Ground Connection Test.....	54
30 Input Test.....	54
31 Dielectric Voltage Withstand Test.....	54
32 Temperature Test	55
33 Humidity Conditioning Test.....	59
34 Water Spray Test.....	59
35 Abnormal Operation Tests.....	63
35.1 Component short- and open-circuit test	63
35.2 Capacitor overvoltage test	63
36 Handle Tests.....	63
37 Brush Cap Test	64
38 Attachment Plug Test.....	64
39 Strain Relief And Torque Tests.....	65
40 Cord Flexing Test	65
41 Pressure Pad Test	68
42 Switch and Control Tests.....	68
42.1 General.....	68
42.2 Reversing switch	69
42.3 Speed changing switch	69
43 Accelerated Aging Test	70
44 Polymeric Materials Not Classed HB.....	70
44.1 Mold stress relief test	70
44.2 Resistance to impact test – appliance	71
44.3 Resistance to impact – component.....	72
44.4 Abnormal operation test	73
44.5 Flame resistance test.....	74
45 Polymeric Materials Classed HB.....	74
45.1 Mold-stress evaluation and input test.....	74

This is a preview. Click here to purchase the full publication.

45.2	Resistance to impact test	74
45.3	Overload test.....	75
45.4	Physical properties of enclosure material tests	75
46	High Current Arc Ignition Test.....	75
47	Permanence of Marking Tests	76
47.1	General.....	76
47.2	Oven aging test	76
47.3	Immersion test.....	77
47.4	Standard atmosphere test	77

MANUFACTURING AND PRODUCTION TESTS

48	General	77
49	Production Line Dielectric Voltage Withstand Test	77
50	Production Line Grounding Continuity Test	78

RATING

51	General	79
----	---------------	----

MARKING

52	General	79
53	Cautionary.....	80
54	Instruction Manual	81
54.1	General.....	81
54.2	Important safety instructions	82

PART 2 – SPECIFIC APPLIANCES

GRASS SHEARS

55	Construction	87
56	Performance	88

LAWN TRIMMERS, EDGERS, AND EDGER-TRIMMERS

57	Construction	88
57.1	General.....	88
57.2	Guarding.....	88
57.3	Knife blade	90
57.4	Cutting blade position.....	90
57.5	Switches	90
57.6	Gauges.....	90
57.7	Support.....	91
57.8	Rotating members	91
57.9	Rotating Members Test – Adjustable Line Trimmers	91
58	Performance	92

CULTIVATORS

59	Construction	92
60	Performance	92

This is a preview. Click here to purchase the full publication.

SHREDDERS, SHREDDER-BAGGERS, OR CHIPPERS

61	Construction	93
62	Performance	94
62.1	General.....	94
62.2	Structural integrity test	94
62.3	Thrown object test	94
62.4	Throwback test.....	96
62.5	Balance test	96

PRUNERS

63	Construction	96
64	Performance	97

POLE PRUNERS

65	Construction	97
66	Performance	98

PART 3 – DOUBLE-INSULATED APPLIANCES**GENERAL**

67	Scope.....	99
----	------------	----

CONSTRUCTION

68	Accessibility of Live Parts.....	99
69	Insulation.....	99
70	Supply Connections	100
70.1	Power supply cord	100
70.2	Strain relief.....	100
70.3	Bushing	101
71	Grounding	101
72	Internal Wiring.....	101
73	Capacitors	102
74	Brush Holders	102
75	Commutators and Armature End-Turns.....	103
76	Switches.....	103
77	Spacings	104

PERFORMANCE

78	Leakage Current Test	105
79	Insulation Resistance Test	105
80	Dielectric Voltage Withstand Test.....	106
81	Resistance to Impact Tests	107
81.1	General.....	107
81.2	Overall appliance.....	107
81.3	Switches, handles, and knobs.....	107
82	Resistance to Heat Test	108
83	Overload Test.....	108
83.1	General.....	108