

ISO 28139:2019-12 (E)

Equipment for crop protection - Knapsack combustion engine-driven airblast sprayers - Safety and environmental requirements and test methods

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Safety requirements and/or protective measures	3
4.1	General	3
4.2	Stability when in operation	3
4.3	Exhaust system	3
4.4	Air tube and chemical hoses	3
4.5	Controls	4
4.5.1	General	4
4.5.2	Handle	4
4.5.3	Throttle trigger	5
4.5.4	Engine stopping device	5
4.5.5	Starting device	5
4.5.6	Liquid line shut-off valve	5
4.6	Machine support	5
4.6.1	Harness	6
4.7	Power-driven components	6
4.8	Fuel tank	6
4.9	Protection against contact with hot parts	6
4.10	Electrical requirements	8
4.10.1	General	8
4.10.2	Ignition circuit	8
4.11	Vibration	8
4.11.1	Reduction by design at source and by protective measures	8
4.11.2	Vibration measurement	8
4.12	Noise	8
4.12.1	Reduction by design at source and by protective measures	8
4.12.2	Noise measurement	9
4.13	Electromagnetic immunity	9
4.13.1	Requirements	9
4.13.2	Verification	9
5	Environmental requirements	9
5.1	General	9
5.2	Absorbency of carrying straps	9
5.3	Spray tank	9
5.4	Strainers and filters	10
5.5	Droplet size	11
5.6	Air hoses and chemical hoses	11
5.7	Fan	11
5.8	Mass of total residual liquid	11
5.9	Stability	11
5.10	Spray liquid flow rate	11

5.11	Test report	12
6	Tests	12
6.1	Test liquids and equipment	12
6.2	Test conditions	13
6.2.1	General	13
6.2.2	Engine speed	13
6.3	Spray liquid output	13
6.4	Mass of total residual liquid	13
6.5	Stability	14
6.6	gauge scale and total tank volume	14
6.7	Filling rate	14
6.8	Air velocity	15
7	Information for use	16
7.1	Instruction handbook	16
7.1.1	General	16
7.1.2	Technical data	18
7.2	Marking	19
7.3	Warnings	19
	Annex A (informative) List of significant hazards	20
	Annex B (normative) Sampling grid position for air velocity determination	25
	Annex C (normative) Stability test	26
	Annex D (informative) Example of a knapsack combustion engine-driven airblast sprayer	27
	Annex E (informative) Safety signs	28
	Annex F (informative) Position of sprayer and Petri dishes for potential ground deposit determination	29
	Annex G (informative) Sprayer locking device	30
	Annex H (informative) Device for detecting potential vertical deposits	31
	Annex I (informative) Potential ground deposit, potential vertical deposit and droplets size test	32
	Annex J (informative) Minimum content of test report	35
	Bibliography	39