DIN EN 17033:2018-03 (E)

Plastics - Biodegradable mulch films for use in agriculture and horticulture - Requirements and test methods

Contents

Page

EUROPEAN FOREWORD 4

1 SCOPE 5

2 NORMATIVE REFERENCES 5

3 TERMS AND DEFINITIONS 6

3.1 DEFINITIONS RELATED TO FILMS 6
3.2 DEFINITIONS RELATED TO BIODEGRADATION AND DISINTEGRATION 7
3.3 DEFINITIONS RELATED TO TEST SOIL 8
3.4 DEFINITIONS RELATED TO ECOTOXICITY AND CONTROL OF CONSTITUENTS 9

4 GENERAL REQUIREMENTS 9

5 REQUIREMENTS FOR MATERIALS, TESTING SCHEMES AND EVALUATION CRITERIA FOR BIODEGRADATION AND ECOTOXICITY 9

5.1 CONTROL OF CONSTITUENTS 9
5.2 BIODEGRADATION 10
5.3 ECOTOXICITY 11

6 DIMENSIONAL, MECHANICAL AND OPTICAL PROPERTIES OF THE FILMS 14

6.1 REQUIREMENTS 14
6.2 APPEARANCE OF FILMS 15
6.3 TEST METHODS 15

7 DELIVERY CHECKING 17

8 FILM DESIGNATION 17

9 MARKING 17

9.1 MARKING OF THE FILM (OPTIONAL) 17
9.2 MARKING ON PACKAGING OR LABEL 18

10 TEST REPORT 18

11 FUNCTIONS AND SERVICE LIFE OF BIODEGRADABLE MULCH FILMS 18

12 CONDITIONS FOR INSTALLATION AND USE OF MULCH FILMS 18

ANNEX A (NORMATIVE) PREPARATION OF SOILS FOR ECOTOXICITY TESTING 19

A.1 GENERAL 19

A.2 PREPARATION OF THE SOIL 19

A.3 REACTORS 19

A.4 INITIAL TEST ITEM CONCENTRATION 19

A.5 TEST DURATION 20

ANNEX B (NORMATIVE) DETERMINATION OF ACUTE EFFECTS OF MATERIALS ON THE EMERGENCE AND GROWTH OF HIGHER PLANTS 21

B.1 GENERAL 21

B.2 PROCEDURE 21

B.3 EVALUATION OF THE RESULTS 22
ANNEX C (NORMATIVE) DETERMINATION OF ACUTE EFFECTS OF MATERIALS ON EARTHWORMS 23
C.1 GENERAL 23
C.2 PROCEDURE 23
C.3 EVALUATION OF THE RESULTS 23
ANNEX D (NORMATIVE) DETERMINATION OF EFFECTS OF MATERIALS ON REPRODUCTION OF EARTHWORMS 24
D.1 GENERAL 24
D.2 PROCEDURE 24
D.3 EVALUATION OF THE RESULTS 24
ANNEX E (NORMATIVE) DETERMINATION OF NITRIFICATION ACTIVITY OF SOIL MICROORGANISMS 25
E.1 GENERAL 25
E.2 PROCEDURE 25
E.3 EVALUATION OF THE RESULTS 25
ANNEX F (NORMATIVE) DETERMINATION OF RELATIVE LIGHT TRANSMISSION 26
F.1 PRINCIPLE 26
F.2 APPARATUS 26
F.3 PROCEDURE 26
F.4 EXPRESSION OF RESULTS 26
ANNEX G (INFORMATIVE) FUNCTIONS AND SERVICE LIFE OF BIODEGRADABLE MULCH FILMS 27
G.1 GENERAL 27
G.2 FACTORS OF DEGRADATION OF BIODEGRADABLE MULCH FILMS 27
G.3 MAIN FUNCTIONS OF BIODEGRADABLE MULCH FILMS 27
G.4 SERVICE LIFE ON SOIL OF BIODEGRADABLE MULCH FILMS 28
ANNEX H (INFORMATIVE) GOOD PRACTICE GUIDANCE FOR USE OF BIODEGRADABLE MULCH FILMS 31
H.1 WARNING 31
H.2 SOIL PREPARATION 31
H.3 FILM LAYING 31
H.4 FILM PERFORATION 31
H.5 CULTIVATION TECHNIQUES AND BIODEGRADABLE FILMS 32
H.6 FILM LIFETIME 33
H.7 TREATMENT OF FILMS AT THE END OF CULTIVATION 33
H.8 STORAGE 33
ANNEX I (INFORMATIVE) QUALITATIVE EVALUATION OF THE DISINTEGRATION IN A SLIDE FRAME TEST 35
BIBLIOGRAPHY 38