

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