



**Biodegradation Analysis Report**



**Applicant : NYTEX COMPOSITES CO. LTD.**

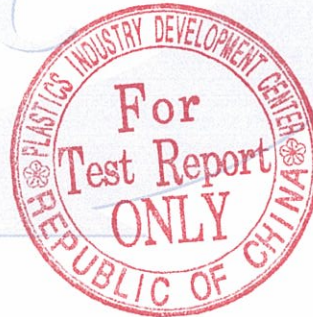
**Address : No. 6. Ln. 468. sec. 4. Changsui Rd.,  
Peitou Hsiang, Changhwa Country, Taiwan, R.O.C.**

**Sample name : GT-0010N**

**Test method : ASTM D6400**

**Plastic Industry Development Center  
BiodegradationI Laboratory**

*Caleb Wang*  
Group Leader



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## 1. Sample information

Assignment no : 099A011-J310092-3E

Sample name : GT-0010N

Applicant : NYTEX COMPOSITES CO. LTD.  
No. 6. Ln. 468. sec. 4. Changsui Rd., Peitou Hsiang,  
Changhwa Country, Taiwan, R.O.C.

Date received : 2010 / 06 / 08

Date tested : 2010 / 11 / 09

Test method : EN13432 / OECD G208

### 1.1 Overview of test result

Test material : GT-0010N

Reference material : Blank

Seed species : Sweet corn 、 Barley 、 Pea

	Test material	Reference material
Seedling emergence ratio (%)	78.6	79.9
Seedling survival ratio (%)	100	100
Observation	No obvious virulence effect was observed	No obvious virulence effect was observed

### Validity criteria

- ◆ The minimum ratio of seed emergence in the test is 65 % ?
  - Yes      □ No
- ◆ No obvious virulence effect was observed during grow test ?
  - Yes      □ No
- ◆ At the end of test, the minimum sprout survival rate is 90 % ?
  - Yes      □ No



## 2. Seed species

### (1) Sweet corn

Place of origin : Gansu, China  
Germination rate : Greater than 75 %  
Chemicals treatment : None  
Sowing period : February to October  
Germination temp. : 20~25°C  
Type : Monocotyledonae

### (2) Barley

Place of origin : U.S.A.  
Germination rate : Greater than 80%  
Chemicals treatment : None  
Sowing period : January to December  
Germination temp. : 15~25°C  
Type : Monocotyledonae

### (3) Pea

Place of origin : Taiwan  
Germination rate : Greater than 90%  
Chemicals treatment : None  
Sowing period : January to December  
Germination temp. : 15~25°C  
Type : Dicotyledonae





## 2.1 Test environment

### (1) Culture container

Relative humidity :  $70 \pm 5 \%$

Temperature :  $25 \pm 1^\circ\text{C}$

Light : 12 hrs / day

### (2) Grow container

Container type : Plastic flower pot

Diameter : 50 cm

### (3) Soil

Soil type : Sticky soil

Organic carbon : 3.16 %

pH Value : 7.16

### (4) Seed type

Each test requires three round of test result, the test detail of each round are provided as Table 1.

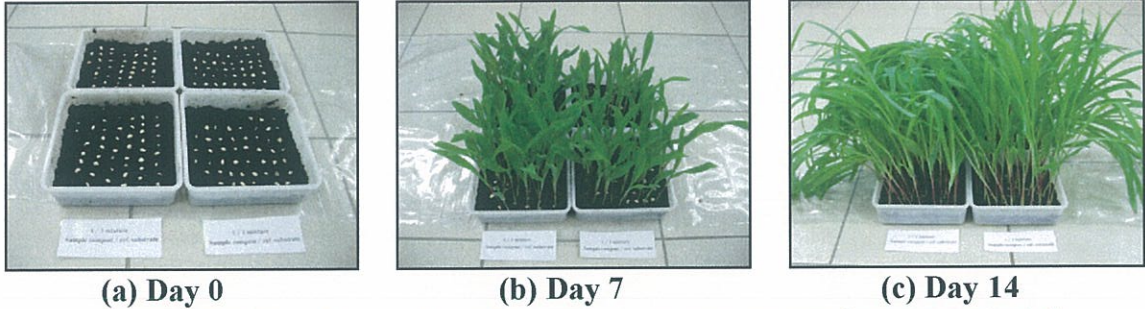
**Table 1 : Test numbers for each round of test**

Seed type	Test numbers
Sweet corn	100
Barley	100
Pea	100

### 3. Test result

#### 3.1 Seedling emergence test (OECD G208)

##### 【Sweet corn】

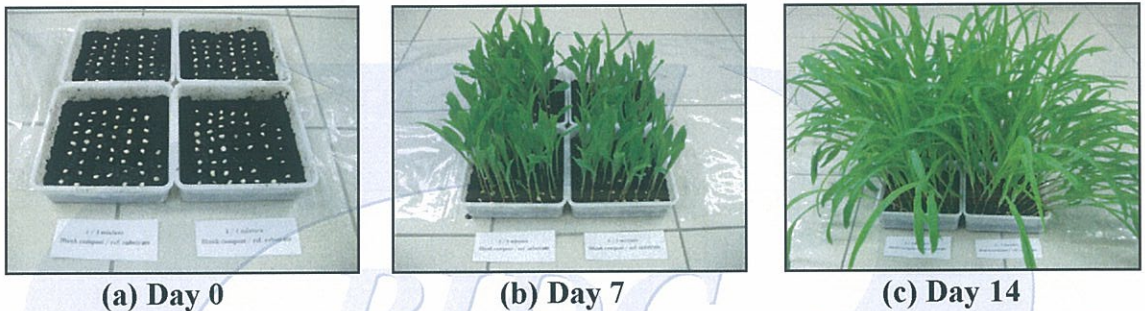


(a) Day 0

(b) Day 7

(c) Day 14

Figure 1 : The observation of seedling emergence test for test material



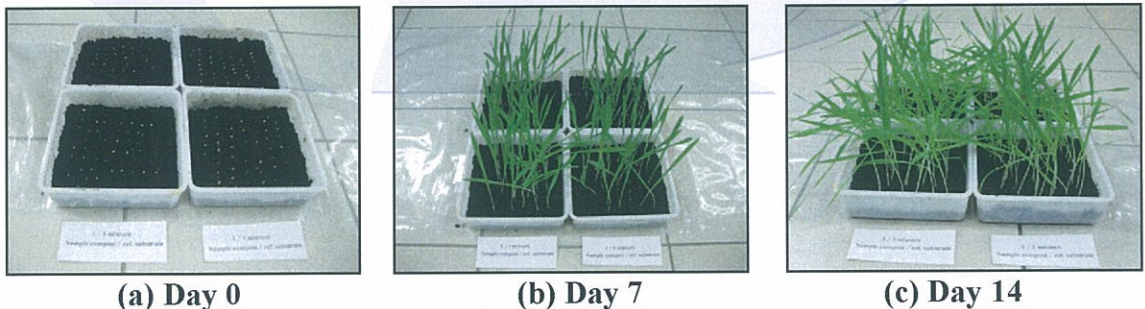
(a) Day 0

(b) Day 7

(c) Day 14

Figure 2 : The observation of seedling emergence test for reference material

##### 【Barley】

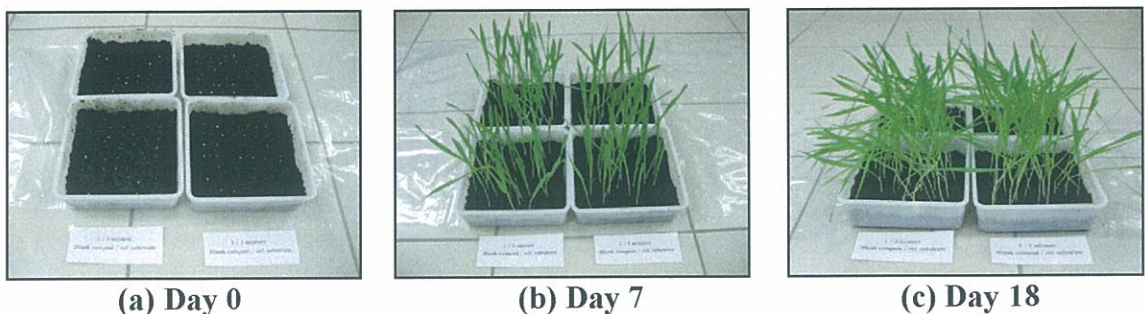


(a) Day 0

(b) Day 7

(c) Day 14

Figure 3 : The observation of seedling emergence test for test material



(a) Day 0

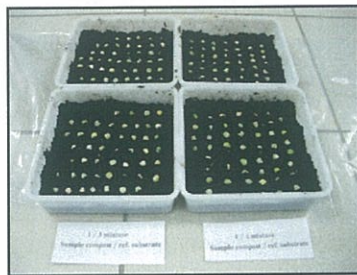
(b) Day 7

(c) Day 18

Figure 4 : The observation of seedling emergence test for reference material



**【Pea】**



**(a) Day 0**



**(b) Day 10**



**(c) Day 15**

**Figure 5 : The observation of seedling emergence test for test material**



**(a) Day 0**



**(b) Day 10**



**(c) Day 15**

**Figure 6 : The observation of seedling emergence test for reference material**

PIDC



The excotoxicity test results of Sweet corn on the germination and biomass after 14 days.

Treatment	Seed germination			Seedling growth		Expressed character	
	Seed No.	Germination No.	Germination rate (%)	Value (%)	Biomass(g) (average per seedling)	Yellowish (after germination)	Death (after germination)
0%	B1	100	85	84.3	1.98	0	0
	B2	100	84		1.96	0	0
	B3	100	84		1.98	0	0
25%	B1	100	83	84.3	1.96	0	0
	B2	100	85		1.97	0	0
	B3	100	85		1.97	0	0
50%	T1	100	84	84.0	1.95	0	0
	T2	100	85		1.96	0	0
	T3	100	83		1.95	0	0
50%	B1	100	84	84.7	1.97	0	0
	B2	100	84		1.97	0	0
	B3	100	86		1.95	0	0
50%	T1	100	83	82.7	1.94	0	0
	T2	100	83		1.95	0	0
	T3	100	82		1.95	0	0

B : Blank compost group

T : Test sample compost group

0% : The reference substrate without any compost obtained after disintegration of test sample

25% and 50% : The reference substrate mix with 25% and 50% (w/w) of test compost





Assignment Number: 099A011-J310092-3E

The ecotoxicity test results of Barley on the germination and biomass after 14 days.

Treatment	Seed germination				Seedling growth		Expressed character	
	Seed No.	Germination No.	Germination rate (%)		Biomass(g) (average per seedling)	Yellowish (after germination)	Death (after germination)	
			Germination rate (%)	Value (%)				
0%	B1	100	76	77.7	0.398	0	0	
	B2	100	79		0.396	0	0	
	B3	100	78		0.396	0	0	
25%	B1	100	77	77.7	0.399	0	0	
	B2	100	79		0.396	0	0	
	B3	100	77		0.395	0	0	
	T1	100	75	75.7	0.396	0	0	
	T2	100	76		0.394	0	0	
	T3	100	76		0.395	0	0	
50%	B1	100	77	77.3	0.396	0	0	
	B2	100	79		0.395	0	0	
	B3	100	76		0.396	0	0	
	T1	100	76	76.0	0.395	0	0	
	T2	100	75		0.396	0	0	
	T3	100	77		0.395	0	0	

B : Blank compost group      T : Test sample compost group  
 0% : The reference substrate without any compost obtained after disintegration of test sample  
 25% and 50% : The reference substrate mix with 25% and 50% (w/w) of test compost





Assignment Number: 099A011-J310092-3E

The ecotoxicity test results of Pea on the germination and biomass after 14 days.

Treatment	Seed germination				Seedling growth		Expressed character	
	Seed No.	Germination No.	Germination rate (%)		Biomass(g) (average per seedling)	Yellowish (after germination)	Death (after germination)	
			Germination rate (%)	Value (%)				
0%	B1	100	78	78.7	1.58	0	0	
	B2	100	79		1.59	0	0	
	B3	100	79		1.56	0	0	
25%	B1	100	78	77.7	1.55	0	0	
	B2	100	76		1.58	0	0	
	B3	100	79		1.57	0	0	
	T1	100	78	76.7	1.56	0	0	
	T2	100	76		1.57	0	0	
	T3	100	76		1.55	0	0	
50%	B1	100	79	77.7	1.58	0	0	
	B2	100	76		1.56	0	0	
	B3	100	78		1.54	0	0	
	T1	100	76	76.3	1.56	0	0	
	T2	100	77		1.53	0	0	
	T3	100	76		1.55	0	0	

B : Blank compost group      T : Test sample compost group  
 0% : The reference substrate without any compost obtained after disintegration of test sample  
 25% and 50% : The reference substrate mix with 25% and 50% (w/w) of test compost



#### 4. Conclusion

There are three type of seeds are used in this test : Sweet Corn, Barley, and Pea. The overall seedling emergence ratio are 78.6% and 79.9% for test material and reference material, they are above the minimum requirement of 65%. The seedling survival ratio are 100.0% for test material and reference material, also higher than the requirement of 90%.

During the test, there is no obvious virulence effect was observed for seedling emergence and seedling growth.

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