



**100% COMPOSTABLE**  
PRODUCT MANUFACTURER

**WE CARE. GIVE  
GREEN  
A CHANCE**

**2022**  
**PRODUCT CATALOGUE**

# **MARIBUMI STARCHTECH** **SDN. BHD.**

was established on 12th August 2009. We are among of Malaysia's most innovative companies that strive to be difference makers in continuously generating sustainable impact for the environment, involved in core activities centred in manufacturing 100% compostable products.

Positioned for growth at both local and global levels, we have brought together expertise comprising researchers, production team and marketers for the development and innovation of a new range of compostable plant-based products. Together, the team has shared commitment to the vision of greener alternatives for the future generation.





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## WHY US?

**MARIBUMI STARCHTECH** are a group of people that **socially and environmentally responsible** embracing creativity to offer green alternatives product with quality, cause no unnecessary harm, use business to inspire and implement solutions to the environmental crisis. Our slogan, **We Care. Give Green a Chance.** is our commitment to take a stepwise approach that cherishes nature and restores the environment whereby improving the quality of life in our communities and the planet.

**OUR VISION** is to become an industry leader in fostering sustainable environment by producing 100% Compostable Products derived from natural resources that complies with International Standard in support to **Zero-Plastic Waste** initiative worldwide. We strive to promote environmentally friendly business practices at every stage of our product lifecycle, from research and development and production to customer use and disposal.

### OUR MISSIONS are:

- ✱ To inspire positive environmental change through actions and products that foster a more sustainable living for future generation.
- ✱ To continuously empower communities and organization to ignite initiative that can generate sustainable impact for the environment and reach sustainability goals. Together we will create a sustainable world.
- ✱ To provide affordable, high quality of functional strength and long shelf-life of compostable products for multi-purpose application.
- ✱ To continually maintain compliance with ISO standards and environmental regulations to achieve product quality to meet customer's requirements as well as reducing our impact on the environment.

Moving towards zero single-use plastics are possible by pushing the limits for better, greener, and sustainable standards of living with proper awareness, education, and continuous effort in promoting the availability of eco-friendly alternatives.





## OUR RAW MATERIAL

Our products are formulated from **Bio-Resin**, a raw material that derived from renewable resources, **natural plant-based** which is an annually renewable resource. Our raw material is certified as compostable that meet international standards for compostability as below: -

- ✱ Europe Standard EN 13432-2000 "Requirements for packaging recoverable through composting and biodegradation". certified by Din Certco, Germany
- ✱ USA Standard ASTM D 6400:2012-01 - "Standard Specification for Compostable Plastics", certified by Biodegradable Products Institute (BPI), USA
- ✱ Australia Standard AS 4736 - "Biodegradable Plastics suitable for composting and other microbial treatment", certified by Australasian Bioplastics Association (ABA), Australia

Europe	USA	Australia
EN13432 #7W0086	ASTM D6400	AS 4736 ABAP10007

We can cater to customer needs depending on the product requirements requested from the users. Our product applications may include the following: -

- ✱ Customise colours;
- ✱ Customise logo printing;
- ✱ Customise logo design;
- ✱ Customise size and dimension;

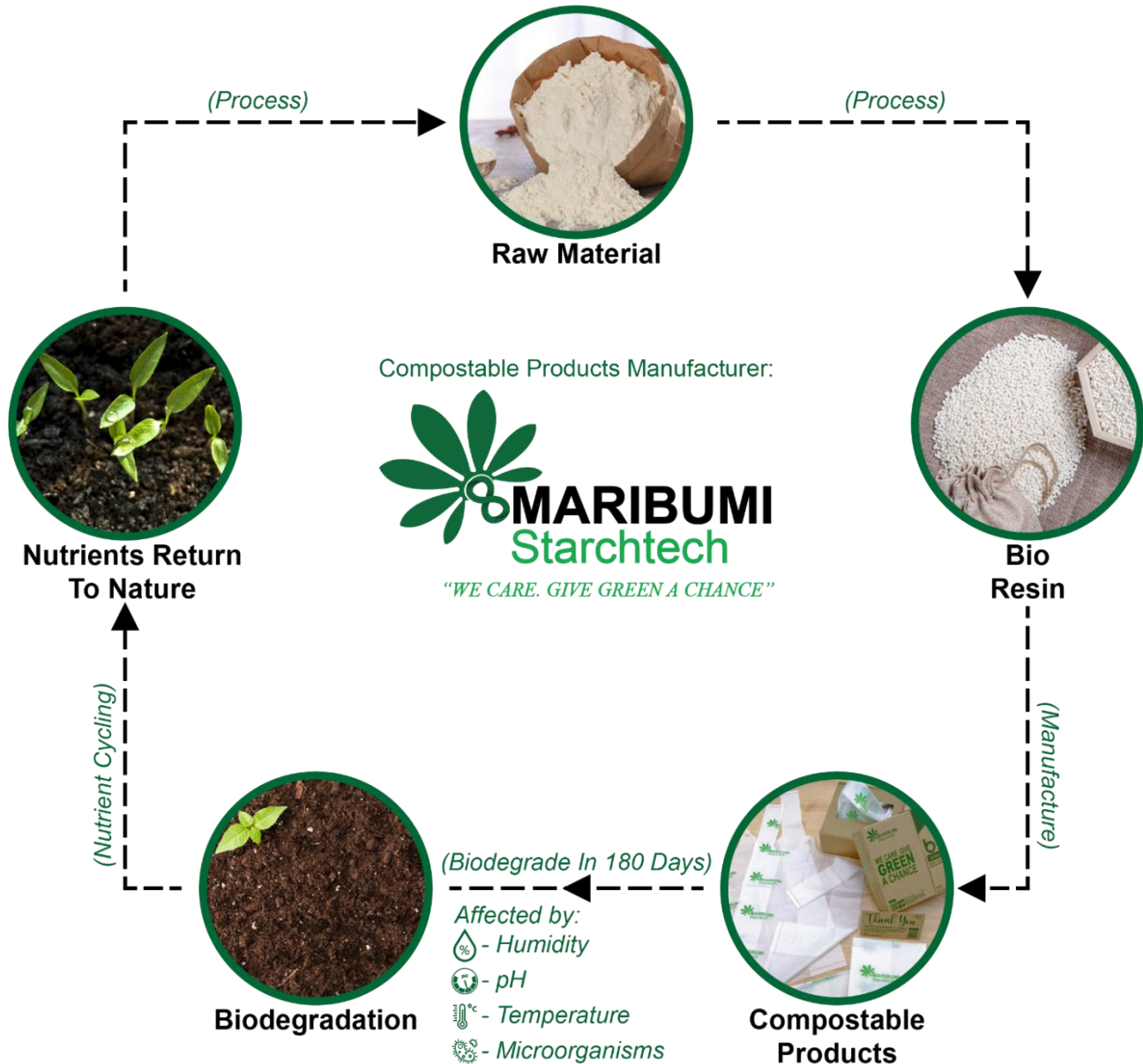
**Note:** Some application may have limits based on the production can run. This solely for maintaining the environment practices.

**\*\*Please refer our raw material *Technical Data Sheet* at Attachment A. Please contact us for further certification.**

**MARIBUMI STARCHTECH™** brand is a sustainable, affordable and an environmentally friendly alternative to conventional plastic and paper bags. Our breakthrough is its cost-effective technology designed for better environmental protection. With cautious selection of **raw materials** that are renewable resources, we aim to inspire people to leave a greener legacy for our future generations with our products. Our products can **positively influence our environment** as they will take approximately within **180 days** to decompose depending on the composting environment. Industrial composting is typically quicker than home composting due to the large-scale composting normally designed to handle a high volume of organic waste and the temperatures of an industrial compost. This compost is very ideal to farms and plant nurseries considering the large-scale normally required. Our products can also be considered **chemically harmless to animals if ingested**. Nevertheless, our products must be stored in a proper room temperature and best to avoid direct sunlight to maintain long shelf life.



## THE LIFE CYCLE OF **MARIBUMI STARCHTECH** COMPOSTABLE PRODUCTS



Our compostable products are great alternatives to most conventional plastic and petroleum plastic that took a thousand years to break down which does not decompose into nutrients so this will also attract toxic substances which are bad to our environment while our products **biodegrade within 180 days**, depending on the composition and environmental condition our products exposed to the environment. It can also be broken down easily in landfills or open environment, making it natural fertilizer aids in growth of plant which also return back to nature.

YOUR **100% COMPOSTABLE** PRODUCT MANUFACTURER

General Enquiry: [enquiry@maribumistarchtech.com](mailto:enquiry@maribumistarchtech.com) | Sales Enquiry: [sales@maribumistarchtech.com](mailto:sales@maribumistarchtech.com) | Tel (Factory): +603 8727 9677 | Tel (HQ): +603 7958 5857

WE CARE. GIVE  
**GREEN**  
A CHANCE



## OUR UNIQUENESS







## COMPOSTABLE BIN LINER



### PRODUCT DESCRIPTION

In the right environment, our compostable garbage bag is designed to turn into compost within 180 days. They still offer proven strength and tear resistance while remaining earth-friendly.



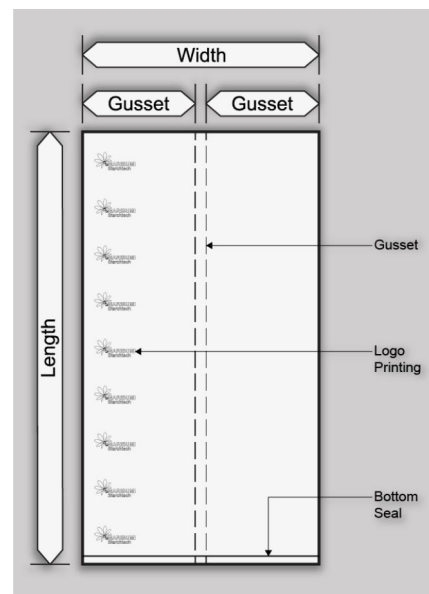
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Residential use, Kitchen, Pantry, Hotel, Bars, Restaurant, School, Food & Beverage Industry, Public Places, Office, Industrial use, or Government Use.



### TECHNICAL SPECIFICATION FOR COMPOSTABLE BIN LINER

Size	S	M	L
Model No.	BL2334	BL2354	BL2455
Dimension (mm / inches) **(Width x Length)	455mm x 535mm (18inch x 21inch)	560mm x 840mm (22inch x 33inch)	710mm x 915mm (28inch x 36inch)
Gusset (mm / inches)	230mm (9.0inch)	280mm (11.0inch)	350mm (14.0inch)
***Thickness (microns)	30	30	40
Packaging (per pack)	Subject to customer's demand		
Product Type	Single-Use and Compostable Product		
Product Colour	Natural / Orange / Brown / Blue (We accept customized; according to customer's demand)		
Printing	Subject to customer's demand		
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.		
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.		

\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.





## COMPOSTABLE SINGLET BAG



### PRODUCT DESCRIPTION

Our compostable singlet bag has good tear resistance, good moisture barrier properties, strong and sturdy, stores and works well, and stronger seal at bottom.



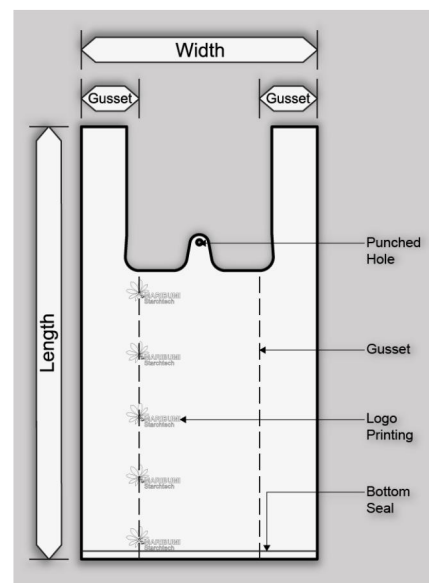
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Commercial use; Supermarket, Hypermarket, Grocery, Restaurant, Hawker stall, Café, or Food takeaways.



### TECHNICAL SPECIFICATION FOR COMPOSTABLE SINGLET BAG

Size	S	M	L
Model No.	SB 2323	SB 2333	SB 2434
Dimension (mm / inches) **(Width x Length)	305mm x 380mm (12inch x 15inch)	380mm x 455mm (15inch x 18inch)	455mm x 535mm (18inch x 21inch)
Gusset (mm / inches)	150mm (6.0inch)	200mm (8.0inch)	250mm (10.0inch)
***Thickness (microns)	30	30	40
Packaging (per pack)	Subject to customer's demand		
Product Type	Single-Use and Compostable Product		
Product Colour	Natural (We accept customized; according to customer's demand)		
Printing	Subject to customer's demand		
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.		
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.		

\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.



## COMPOSTABLE MERCHANDISE BAG



### PRODUCT DESCRIPTION

Our compostable merchandise bag can be customized according to your plastic bag requirements. Choose the size, colour and printing to create the image you want for your retail store.



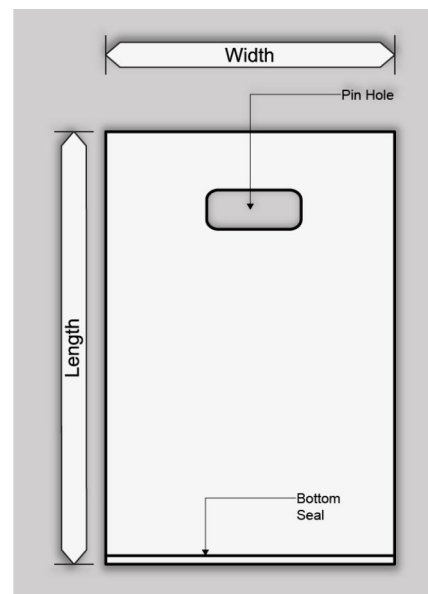
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Perfect for lightweight items; Stationary, Candies / Treats, Presents, Gifts, Jewellery, Clothing, Fashion, Accessories, Personal use.



### TECHNICAL SPECIFICATION FOR COMPOSTABLE MERCHANDISE BAG

Size	S	M	L
Model No.	MB 4323	MB 4333	MB 4434
Dimension (mm / inches) **(Width x Length)	305mm x 380mm (12inch x 15inch)	380mm x 455mm (15inch x 18inch)	455mm x 535mm (18inch x 21inch)
Gusset (mm / inches)	-	-	-
***Thickness (microns)	30	30	40
Packaging (per pack)	Subject to customer's demand		
Product Type	Single-Use and Compostable Product		
Product Colour	Natural (We accept customized; according to customer's demand)		
Printing	Subject to customer's demand		
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.		
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.		

\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.





## COMPOSTABLE LAUNDRY BAG



### PRODUCT DESCRIPTION

These earth friendly laundry bags can be customized in sizes, colours and printing logo depending on customer's requirements.



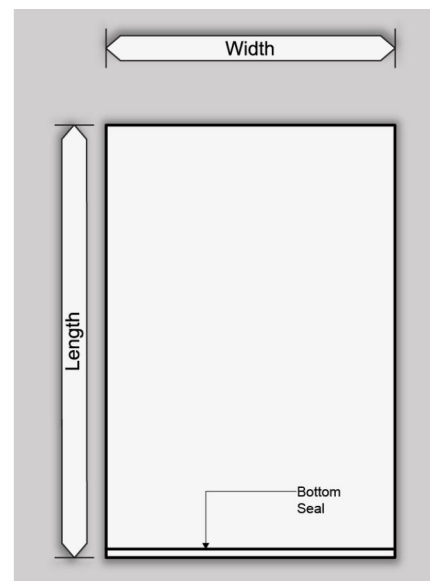
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Residential use, Hotel, Bars, Restaurant, School, Food & Beverage Industry, Public Places, Industrial use, or Government Use



### TECHNICAL SPECIFICATION FOR COMPOSTABLE LAUNDRY BAG

Size	S	L
Model No.	LB 4553	LB 4654
Dimension (mm / inches) **(Width x Length)	560mm x 840mm (22inch x 33inch)	560mm x 915mm (22inch x 36inch)
Gusset (mm / inches)	-	-
***Thickness (microns)	45	55
Packaging (per pack)	Subject to customer's demand	
Product Type	Single-Use and Compostable Product	
Product Colour	Natural (We accept customized; according to customer's demand)	
Printing	Subject to customer's demand	
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.	
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.	

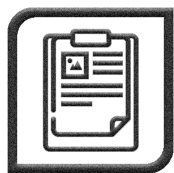
\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.



## COMPOSTABLE GARMENT BAG



### PRODUCT DESCRIPTION

Our compostable garment bag can stand the effects of tearing, flexible, clear, protect clothes from dust, dirt, and smells by hanging the inside with hanger.



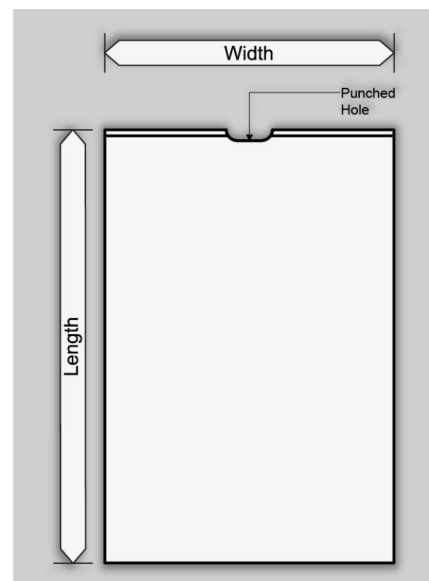
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Earth-friendly container of flexible material, used to ease transporting suits, jackets or clothing in general, Household, Hostels, Hotel, Laundry services.



### TECHNICAL SPECIFICATION FOR COMPOSTABLE GARMENT BAG

Size	S	M	L
Model No.	GB 4244	GB 4354	GB 4384
Dimension (mm / inches) **(Width x Length)	508mm x 785mm (20.0inch x 31.0inch)	508mm x 990mm (20.0inch x 39.0inch)	508mm x 1,495mm (20.0inch x 59.0inch)
Gusset (mm / inches)	-	-	-
***Thickness (microns)	20	25	25
Packaging (per pack)	Subject to customer's demand		
Product Type	Single-Use and Compostable Product		
Product Colour	Natural (We accept customized; according to customer's demand)		
Printing	Subject to customer's demand		
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.		
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.		

\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.





## COMPOSTABLE PLANTER BAG



### PRODUCT DESCRIPTION

Our bio-planter bag makes the planting job done so quickly; just trans-plant together with the seedling bag or bury the plant with our bag in the soil since they are compostable. These earth-friendly planter bags also act as natural fertilizer to the plants.



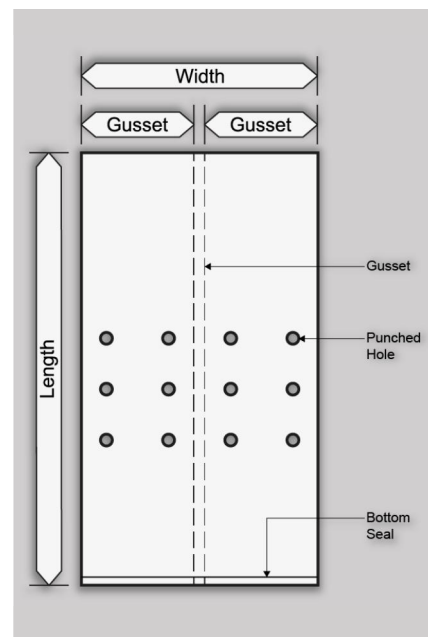
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

- \* Seedling Bag for Pre-Nursery Stage (Oil Palm); or
- \* Trans-plant Bag for Main Stage (Oil Palm);
- \* Cultivation of vegetables on the terrace and balconies.



### TECHNICAL SPECIFICATION FOR COMPOSTABLE PLANTER BAG

Size	XS		S	M	L
Model No.	NB 2421-5	NB 2421	NB 4522	NB 41033	NB 41033-A
Dimension (mm / inches) **(Width x Length)	150 x 300 (6" x 12")	150 x 300 (6" x 12")	250 x 400 (10" x 16")	350 x 500 (14" x 20")	400 x 600 (16" x 25")
Gusset (mm / inches)	70mm (3.0inch)	70mm (3.0inch)	-	-	-
***Thickness (microns)	40	40	50	100	120
Product Colour	Dark Green	Natural (We accept customized; according to customer's demand)			
Packaging (per pack)	Subject to customer's demand				
Product Type	Single-Use and Compostable Product				
Printing	Subject to customer's demand				
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.				
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.				

\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.



## COMPOSTABLE SLEEVELESS APRON



### PRODUCT DESCRIPTION

Our compostable sleeveless apron is ideally for economical way to prevent body and clothing from contact with dust particles, dirt, and liquid.



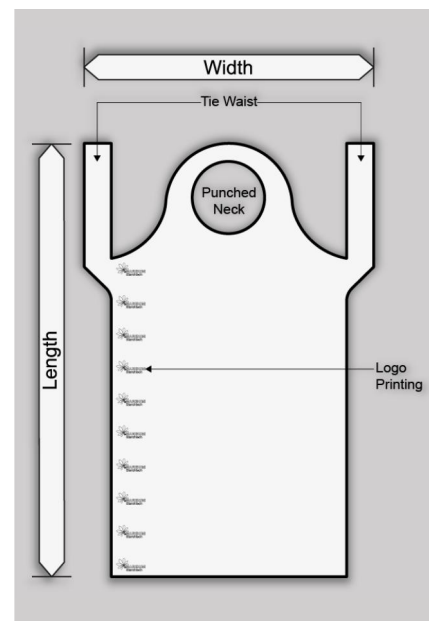
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Kitchen use, Barbecue, Barber / Hair Salon, Massage Centre, Pedicure / Manicure Salon, Clinic / Lab / Healthcare, Hospitality, Gardening, Food Industry, Housekeeping, Painting



### TECHNICAL SPECIFICATION FOR COMPOSTABLE SLEEVELESS APRON

Size	S		M		L	
Type	Light Duty	Heavy Duty	Light Duty	Heavy Duty	Light Duty	Heavy Duty
Model No.	AP-LD-4366	AP-HD-4476	AP-LD-4376	AP-HD-4486	AP-LD-4377	AP-HD-4487
Dimension (mm / inches) **(Width x Length)	760 x 1200 (30" x 47")	760 x 1400 (30" x 55")	860 x 1300 (34" x 51")	860 x 1500 (34" x 59")	960 x 1400 (38" x 55")	960 x 1600 (38" x 63")
***Thickness (microns)	30	40	30	40	30	40
Packaging (per pack)	Subject to customer's demand					
Product Type	Single-Use and Compostable Product					
Product Colour	Natural (We accept customized; according to customer's demand)					
Printing	Subject to customer's demand					
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.					
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.					

\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$  inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$  microns.





## COMPOSTABLE CLINICAL WASTE BAG



### PRODUCT DESCRIPTION

This clinical waste bag is applicable for infectious waste, including medicines contaminated infectious waste. This waste must be sent for incineration (with energy from waste).



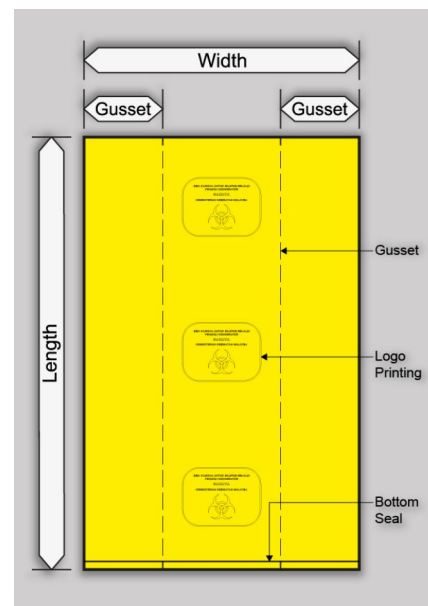
### RAW MATERIAL

1. Masterbatch
2. Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Suitable for clinical waste; PPE, wipes, dressings, plasters and bandages, incontinence waste, empty saline or glucose IV bags, lines, and tubing (no active medicines added).



### TECHNICAL SPECIFICATION FOR COMPOSTABLE CLINICAL WASTE BAG

Size	L
Model No.	CW 1244-4
Dimension (mm / inches) **(Width x Length)	705mm x 705mm (27.5inch x 27.5inch)
Gusset (mm / inches)	230mm (9.0inch)
***Thickness (microns)	30
Packaging (per pack)	Subject to customer's demand
Product Type	Single-Use and Compostable Product
Product Colour	Standard Yellow Colour (We accept customized; according to customer's demand)
Printing	Bio-Hazard Symbol with information of waste disposal method. (Additional printing info can be customized according to customer's demand)
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.

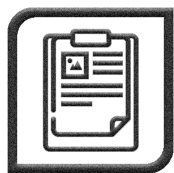
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\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.



## COMPOSTABLE MULTI USE COVER



### PRODUCT DESCRIPTION

Our earth-friendly multi-use covers are good tear resistance, transparent, good moisture barrier, flexible material, smooth texture, and noiseless.



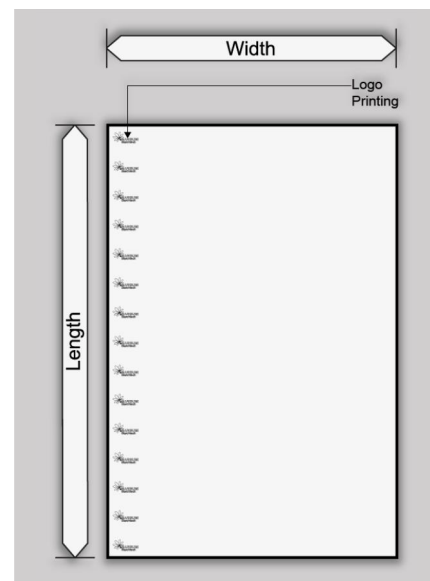
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Suitable for covering for hotel buffet table, outdoor meal, camping or picnicking on the beach, or protection covering for furniture / machine / equipment.



### TECHNICAL SPECIFICATION FOR COMPOSTABLE MULTI USE COVER

Size	U
Model No.	MUC 4397
Dimension (mm / inches) **(Width x Length)	1000mm x 1800mm (39.5inch x 71.0inch)
Gusset (mm / inches)	-
***Thickness (microns)	25
Packaging (per pack)	Subject to customer's demand
Product Type	Single-Use and Compostable Product
Product Colour	Natural (We accept customized; according to customer's demand)
Printing	Subject to customer's demand
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.

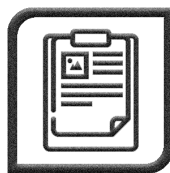
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\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.



## COMPOSTABLE HAIRDRESSING CLOTH COVER



### PRODUCT DESCRIPTION

Our earth-friendly hairdressing cloth cover only available in universal size. This product is water and tear resistant, with one punched neck opening, flexible and easy to stretch.



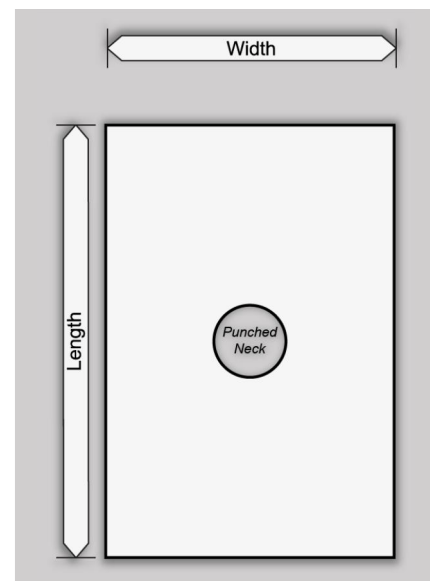
### RAW MATERIAL

Bio-resin, derived from renewable resources which can be decomposed within 180 days once exposed to the environment.



### SUGGESTED APPLICATION

Salon Hair Cut, Beauty Salon, Hairdressing Barber Shop, Home use, Camping, Barbeque, and any other purposes extensive.



### TECHNICAL SPECIFICATION FOR COMPOSTABLE HAIRDRESSING CLOTH

Size	U
Model No.	HCC 4397
Dimension (mm / inches) **(Width x Length)	1000mm x 1800mm (39.5inch x 71.0inch)
Gusset (mm / inches)	-
***Thickness (microns)	25
Packaging (per pack)	Subject to customer's demand
Product Type	Single-Use and Compostable Product
Product Colour	Natural (We accept customized; according to customer's demand)
Printing	Subject to customer's demand
Shelf Life	12 – 24 months with proper handling and stored at conducive temperature. However, it will start to degrade once it is exposed to sunlight, moisture, and oxygen. Therefore, best use after its package has been opened.
Storage	The goods shall be stored in a normal room temperature/condition and must avoid direct sunlight and high humidity area. Best use within 1 year from the manufacturing date.

\*The product illustration is for reference purpose only; actual product may vary due to product enhancement.

\*\*The product dimension may be varied about  $\pm 0.5$ inch for width, length, and gusset.

\*\*\* The product thickness may be varied about  $\pm 3.0$ microns.





## ATTACHMENT A (STANDARD TEST)



### Cardia Compostable B-F02

#### Blown Film Resin

Biodegradable during Composting in Professionally Managed Facilities

#### Description

Cardia Compostable B-F02 is a biodegradable and compostable resin based on a blend of thermoplastic starch (TPS), biodegradable polyesters and natural plasticizers. This grade of resin is compatibilised to offer a high level of mechanical strength, outstanding elongation properties and toughness. The resin is derived from renewable resources including non-GMO corn starch.

#### Application Examples

- Compostable bags
- Shopping bags/Check-out bags
- Garbage bags
- Leaf litter bags
- Produce and meat liners
- Overwrap Packaging
- Mulch film
- Green bin liners

#### Specifications and Compliances

Cardia Compostable B-F02 resin is biodegradable and certified compostable in professionally managed / industrial composting facilities for film and bag applications up to a maximum thickness of 192 microns.

Cardia Compostable B-F02 complies with:

- European Standard EN13432-2000 "Requirements for packaging recoverable through composting and biodegradation", certified by Din Certco, Germany
- USA Standard ASTM D6400:2012-01 – "Standard Specification for Compostable Plastics", certified by Biodegradable Products Institute (BPI), USA
- Australian Standard AS 4736 – "Biodegradable Plastics suitable for composting and other microbial treatment", certified by Australasian Bioplastics Association (ABA), Australia
- ISO17088:2012 Specifications for compostable plastics



#### Physical Properties of Cardia Compostable B-F02

Properties	Test Method	Typical Value*	Unit
Melt Flow Index	ASTM D-1238	1.3 – 3.8	g/ 10 min (190 °C / 2.61 kg)
Density	ASTM D-792	1.2	g/cm <sup>3</sup>
Melting Temperature Range	ASTM D-3418	85 - 98	deg. C
Moisture Content	Internal Standard	<0.6	%
Tensile Strength, MD	ASTM D-882	> 25	MPa
Tensile Strength, TD	ASTM D-882	> 15	MPa
Elongation at Break, MD	ASTM D-882	> 270	%
Elongation at Break, TD	ASTM D-882	> 480	%
Elastic Modulus, MD	ASTM D882	>90	N/mm <sup>2</sup>
Elastic Modulus, TD	ASTM D882	>75	N/mm <sup>2</sup>
Impact Resistance-Dart Test	ASTM D-1709	>290	g
Tear propagation, MD	ASTM D-1922	1.2	Newton
Tear propagation, TD	ASTM D-1922	3.1	Newton

\*) Typical values based on a blown film of 20 µm tested in standard lab conditions of 25 °C and 50% RH

200729 CBP TDS - Cardia Compostable B-F02 V3.8.doc

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#### Packaging

Cardia Compostable B-F02 resin is available in 25kg bags and in 1 ton bulk packs (gaylords). The resin is packed in Al lined bags to protect it from absorption of moisture.

#### Colours and Additives

Cardia Compostable B-F02 is available in natural, black, white, purple, brown and green colours. Processing additives like anti-block and slip agent master batches are also available. All colours and additive master batches are certified compliant to the relevant standards for compostability.

#### Transport, Storage and Handling

Cardia Compostable B-F02 resin and products should be transported, stored and handled in cool and dry environments without exposure to direct sunlight. A detailed transport, storage and handling guideline is available through your Cardia Bioplastics™ sales representative.

#### Safety

A Safety Data Sheets (SDS) is available. Please contact your Cardia Bioplastics™ sales representative.

#### Processing Conditions

Cardia Compostable B-F materials can be processed on standard plastic processing equipment. Processing guidelines are unique to this material and are available on request from your Cardia Bioplastics™ sales representative.

#### Cardia Bioplastics

Level 3, 302 Burwood Road  
Hawthorn, VIC 3122 Australia  
Tel.: +61 3 8566 6800  
Email: [info@cardiabio.com](mailto:info@cardiabio.com)  
Website: [www.cardiabio.com](http://www.cardiabio.com)

#### Disclaimer

This information is offered solely for your consideration and verification and should not be construed as a warranty of representation for which Cardia Bioplastics assumes legal liability, except to the extent that such liability is imposed by legislation and cannot be excluded. Values quoted are the results of tests on representative samples and the product supplied may not conform in all respects. Cardia Bioplastics reserves the right to make any improvements or amendments to the composition or any grade or product without alteration to the product code. In using Cardia Bioplastics' products you must establish for yourself the most suitable formulation, production method and control tests to ensure the uniformity and quality of your product is in compliance with all laws.

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# ATTACHMENT B (STANDARD TEST)

## ASTM D1709:2016 Standard Test Methods for Impact Resistance of Plastics Film by the Free-Falling Dart Method



### TEST REPORT

REPORT NO.: 2021PC0504	PAGE: 1 OF 4
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### THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant	MARIBUMI STARCHTECH SDN. BHD. No. 15, Jalan Signature Industrial Park 1 Signature Industrial Park 43500 Semenyih Selangor
Manufacturer	- same as above -
Product	GARBAGE BAG Trademark: MARIBUMI STARCHTECH Type: Compostable Rating: 30 Micron Size: 700 x 700 mm
Reference Standard/ Method of Test	ASTM D1709:2016 - Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method
Description of Sample	Ten (10) pieces of plastic bag sample indicated above were received for testing on 22 July 2021. Photograph of the sample is shown in Appendix A.
Date Received of Complete Application	22 July 2021
Job No.	J20211480388
Description of Test Results	The test result of the submitted test sample is described in Page 2 of this test report.
Issued Date	26 July 2021

Approved Signatories:

(Normazura Zakaria)  
Testing Executive



(Rahmad Abd Shukur)  
Head

Plastics and Composite Materials Section  
Testing Services Department

REPORT NO.: 2021PC0504	PAGE: 2 OF 4
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### Results:

GARBAGE BAG  
Trademark: MARIBUMI STARCHTECH  
Type: Compostable  
Rating: 30 Micron  
Size: 700 x 700 mm

PROPERTY	RESULT	TEST METHOD
Dart Drop Impact	759 g	ASTM D1709 Test parameters: • Method A • Dart dropped height: 680 mm Test date: 26 July 2021

REPORT NO.: 2021PC0504	PAGE: 3 OF 4
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### Appendix A

#### Sample Received for Testing



Figure A.1. Photograph of 'GARBAGE BAG, Trademark: MARIBUMI STARCHTECH  
Type: Compostable; Rating: 30 Micron; Size: 700 x 700 mm' Sample



REPORT NO.: 2021PC0504	PAGE: 4 OF 4
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- A Test Report will be issued in respect of Testing Services conducted and shall relate only to the sample actually tested. SRIM QAS International makes no warranty whatsoever and the Applicant shall not represent in any manner that any duplication or mass production of the Product is same as the sample actually tested in that SRIM QAS International has tested any of the duplicated or mass produced Product. Measurement uncertainty shall be included in the Test Report when there is no statement of conformity required. When a statement of conformity to a specification or standard is applied, the Simple Acceptance Rule is used. Unless otherwise stated, the Acceptance Rule with Guard Band is used.
- The Test Report shall not be misused, amended, changed, varied or modified in any manner whatsoever by the Applicant or otherwise.
- If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in entirety.
- The Test Report shall not be reproduced and shall not be used for any advertising purposes or whatsoever without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSH) of SRIM QAS International at No. 1, Persiaran Duta Menteri, Building 2, P.O. Box 7038, 40700 Shah Alam, Selangor Darul Ehsan.
- Customer (Applicant/Manufacturer/retailer) is not permitted to use any SRIM QAS International, SRIM or other SRIM's subsidiaries logo or words on packaging, sample's manual, technical specification, forms and products.
- Subject to consent and written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSH) of SRIM QAS International, the customer (Applicant/Manufacturer/retailer) may use SRIM QAS International logo or word in the promotional materials and the Applicant shall only include the phrase, "A sample of this product has been tested by SRIM QAS International." (Test Report No.) (Global) (For what test) (On which standard) or such similar words which stress that only the sample was actually tested. This phrase shall only be used for the purpose of product advertisement or product promotion (e.g. brochure/official website). For avoidance of doubt, the statement shall not be used on the sample, packaging of the sample, forms and products.
- In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SRIM QAS International may disclose the information pertaining to the Test Report for purposes of such investigation.
- Further or in the alternative, it is strictly forbidden unless with prior written approval from the Chief Executive Officer of SRIM QAS International, to represent in any manner whatsoever that SRIM QAS International, SRIM and/or other SRIM's subsidiaries have endorsed, approved or validated the Product of the Applicant in any manner whatsoever.
- In the event the Applicant is found in breach of the provision, SRIM QAS International, SRIM and/or other SRIM's subsidiaries without prejudice to any other rights and remedies, may take whatever action necessary including but not limited to:
  - Informing and placing a notice in the media;
  - Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
  - Refusing to accept any further Product for Testing Services from the Applicant or whoever related to the Applicant, whether subsidiary or otherwise;
  - Introducing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SRIM QAS International, SRIM and/or other SRIM's subsidiaries below in a national publication of SRIM QAS International's choice of the Applicant's choice of cost;
  - Informing or lodging a report pertaining to the Applicant's Test Report with the relevant authorities.
- SRIM QAS International is committed in supporting an environmentally friendly business practices by reducing paper consumption. Therefore we do not issue any hard copy of Test Report to the Applicant. However, additional certified true copy(ies) or sufficiency of test report shall only be given for test report issued not more than three (3) years from the date of issuance.
- Issuance of Amendment Report due to the following reasons are chargeable to the Applicant:
  - Changes in details of the Applicant's name and/or address;
  - Changes in details of the Manufacturer's name and/or address;
  - Changes in details of the model and/or type designation;
  - However, issuance of Supplementary Report due to the following reasons are FREE:
    - Misprints and typographical errors;
    - Misleading technical information as agreed in PPT form;
    - Test data not reported;
    - Mistake in reporting of test data.
- Corrections to report shall only be allowed if the date of issuance of the original report has not exceeded 6 months and shall be limited to a maximum 3 times, after either case whichever occur earlier, an Amendment or a Supplementary Report shall not be issued.





## ATTACHMENT C (STANDARD TEST)

### ASTM E1252:1998 (Reapproved 201953) Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis

**SIRIM QAS International Sdn. Bhd.**  
(Company No. 19860102788 (41034-X))  
No. 1, Persiaran Dato' Menteri, Section 2, P.O. Box 7035  
40700 Shah Alam, Selangor Darul Ehsan, Malaysia  
Tel: (63-6) 44030694  
Fax: (63-6) 44030694  
www.sirim-qas.com.my

**TEST REPORT**

REPORT NO.: 2021PC0566 PAGE: 1 OF 5

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Applicant: MARIBUMI STARCHTECH SDN BHD  
No. 15, Jalan Signature Industrial Park 1  
Signature Industrial Park  
43600 Seri Kembangan  
Selangor

Manufacturer: -same as above-

Product: Food Packaging Plastic  
Brand: MARIBUMI STARCHTECH  
Size: 18 inch x 18 inch  
Product description: Biodegradable Food Packaging

Reference Standard/ Method of Test: ASTM E1252 1998 (Reapproved 201953)\* - Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis

Description of Sample: New test sample shown in Appendix A was received for testing on 24 August 2021.

Date Received of Complete Application: 25 August 2021

Job No.: J0211460442

Description of Test Results: The test result of the submitted test sample is described in Page 2 of this test report.

Issued Date: 26 August 2021

Approved Signatories:

(Ir. Zarina Rasmin)  
Principal Testing Executive

(Rahmad Abd Shukur)  
Head  
Plastics and Composite Materials Section  
Testing Service's Department

REPORT NO.: 2021PC0566 PAGE: 2 OF 5

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**Result:**

Product: Food Packaging Plastic  
Brand: MARIBUMI STARCHTECH  
Size: 18 inch x 18 inch  
Product description: Biodegradable Food Packaging

TEST	RESULT	TEST METHOD
Fourier Transform Infra-Red (FTIR) Analysis	<p>Main functional group in the sample</p> <p>-(C=O)O- (ester group) (see Figure B.1 in Appendix B)</p>	<p>ASTM E1252</p> <p>Test parameters:</p> <ul style="list-style-type: none"> <li>Scan method: Using attenuated total reflection (ATR) accessory</li> <li>Scan range: 4000 cm<sup>-1</sup> to 600 cm<sup>-1</sup></li> <li>Number of scans: 16 times</li> </ul> <p>Test date: 25 August 2021</p>

Note: Biodegradable/compostable polymers consist of either ester (in biopolyester), amide (in proteins), or hydroxyl and acetal/ether (in polysaccharide) functional groups

REPORT NO.: 2021PC0566 PAGE: 3 OF 5

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**Appendix A**

Sample Received for Testing

Figure A.1. Photograph of 'Food Packaging Plastic; Brand: MARIBUMI STARCHTECH; Size: 18 inch x 18 inch; Biodegradable Food Packaging' Sample

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**Appendix B**

Functional Group Analysis for 'Food Packaging Plastic' Sample

Figure B.1. FTIR Spectrum of 'Food Packaging Plastic; Brand: MARIBUMI STARCHTECH; Size: 18 inch x 18 inch; Biodegradable Food Packaging' Sample





## ATTACHMENT D (STANDARD TEST)

### ASTM E1252:1998 (Reapproved 201953) Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis

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(Company No.: 1990103795) (410334-K)  
No. 1, Fajarjan Dato' Menter, Section 2, P.O. Box 7035  
47000 Shah Alam, Selangor Darul Ehsan, Malaysia  
Tel: 03-55440200  
Fax: 03-55440209  
www.sirim-qas.com.my

**TEST REPORT**

REPORT NO.: 2021PC0882 PAGE: 1 OF 5

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Applicant : MARIBUMI STARCHTECH SDN BHD  
No. 15, Jalan Signature Industrial Park 1  
Signature Industrial Park  
43500 Semenyih  
Selangor

Manufacturer : -same as above-

Product : COMPOSTABLE PLANTER BAG  
Brand: MARIBUMI STARCHTECH  
Type: COMPOSTABLE  
Size: 150 mm x 300 mm  
Description: SEEDLING BAG FOR COMMERCIAL USE

Reference Standard/ Method of Test : ASTM E1252:1998 (Reapproved 201953)<sup>1</sup> - Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis

Description of Sample : New test sample shown in Appendix A was received for testing on 25 November 2021.

Date Received of Complete Application : 25 November 2021

Job No. : J20211460637

Description of Test Results : The test result of the submitted test sample is described in Page 2 of this test report.

Issued Date : 9 December 2021

Approved Signatories:

(It. Zarina Razamin)  
Principal Testing Executive

(Hafiznas Matlubi)  
Head  
Plastics and Composite Materials Section  
Testing Services Department

REPORT NO.: 2021PC0882 PAGE: 2 OF 5

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**Results:**

Product : COMPOSTABLE PLANTER BAG  
Brand : MARIBUMI STARCHTECH  
Type : COMPOSTABLE  
Size : 150 mm x 300 mm  
Description : SEEDLING BAG FOR COMMERCIAL USE  
Test : Detection of Specific Polymeric Material using FTIR Analysis Technique

NO.	POLYMERIC MATERIAL	RESULT	TEST METHOD
1	Polyvinyl Chloride (PVC)*	Not Detected	ASTM E1252 Test parameters: • Scan method: Using attenuated total reflection (ATR) accessory • Scan range: 4000 cm <sup>-1</sup> to 600 cm <sup>-1</sup> • Number of scans: 16 times Test date: 28 November 2021
2	Phthalates	Not Detected	
3	Polyethylene (PE)*	Not Detected	
4	Polypropylene (PP)*	Not Detected	
5	Polystyrene (PS)*	Not Detected	
6	Bisphenol A	Not Detected	

Note: Further confirmation for the presence of PVC, PE, PP and PS can be done using Differential Scanning Calorimetry (DSC) analysis technique.

REPORT NO.: 2021PC0882 PAGE: 3 OF 5

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**Appendix A**  
Sample Received for Testing

Figure A.1 Photograph of 'COMPOSTABLE PLANTER BAG' Brand: MARIBUMI STARCHTECH Sample

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**Appendix B**  
Functional Group Analysis

Figure B.1. FTIR Spectrum of 'COMPOSTABLE PLANTER BAG' Brand: MARIBUMI STARCHTECH Sample



## ATTACHMENT E (STANDARD TEST)

### ASTM E1252:1998 (Reapproved 201953) Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis

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(Company No.: 1090103781) (410334-3)  
No. 1, 'Panasian Dato' Menten, Section 2, P.O. Box 7035  
47102 Shah Alam, Selangor Darul Ehsan, Malaysia  
Tel: 03-5544020/3040  
Fax: 03-55440200  
www.sirmqas.com.my

**TEST REPORT**

REPORT NO.: 2021PC0881 PAGE: 1 OF 5

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**Applicant:** MARIBUMI STARCHTECH SDN BHD  
No. 15, Jalan Signature Industrial Park 1  
Signature Industrial Park  
43500 Semenyih  
Selangor

**Manufacturer:** -same as above-

**Product:** COMPOSTABLE GARBAGE BAG  
Brand: MARIBUMI STARCHTECH  
Type: COMPOSTABLE  
Size: 457 mm x 533 mm  
Product description: GARBAGE BAG FOR GENERAL USE

**Reference Standard/ Method of Test:** ASTM E1252:1998 (Reapproved 201953)<sup>1</sup> - Standard Practice for General Techniques for Obtaining Infrared Spectra for Qualitative Analysis

**Description of Sample:** New test sample shown in Appendix A was received for testing on 25 November 2021.

**Date Received of Complete Application:** 25 November 2021

**Job No.:** J20211460636

**Description of Test Results:** The test result of the submitted test sample is described in Page 2 of this test report.

**Issued Date:** 9 December 2021

**Approved Signatories:**

(It. Zarina Razmin)  
Principal Testing Executive

(Hafizul Mahbul)  
Head  
Plastics and Composite Materials Section  
Testing Services Department

REPORT NO.: 2021PC0881 PAGE: 2 OF 5

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**Result:**

**Product:** COMPOSTABLE GARBAGE BAG  
**Brand:** MARIBUMI STARCHTECH  
**Type:** COMPOSTABLE  
**Size:** 457 mm x 533 mm  
**Description:** GARBAGE BAG FOR GENERAL USE  
**Test:** Detection of Specific Polymeric Material using FTIR Analysis Technique

NO.	POLYMERIC MATERIAL	RESULT	TEST METHOD
1	Polyvinyl Chloride (PVC)*	Not Detected	ASTM E 1252 Test parameters: • Scan method: Using attenuated total reflection (ATR) accessory • Scan range: 4000 cm <sup>-1</sup> to 600 cm <sup>-1</sup> • Number of scans: 16 times Test date: 26 November 2021
2	Phthalates	Not Detected	
3	Polyethylene (PE)*	Not Detected	
4	Polypropylene (PP)*	Not Detected	
5	Polystyrene (PS)*	Not Detected	
6	Bisphenol A	Not Detected	

Note: Further confirmation for the presence of PVC, PE, PP and PS can be done using Differential Scanning Calorimetry (DSC) analysis technique.

REPORT NO.: 2021PC0881 PAGE: 3 OF 5

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**Appendix A**  
**Sample Received for Testing**

Figure A.1. Photograph of 'COMPOSTABLE GARBAGE BAG' Brand: MARIBUMI STARCHTECH Sample

REPORT NO.: 2021PC0881 PAGE: 4 OF 5

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**Appendix B**  
**Functional Group Analysis**

Major functional group: Ester (-C(=O)O-)

Figure B.1. FTIR Spectrum of 'COMPOSTABLE GARBAGE BAG' Brand: MARIBUMI STARCHTECH Sample





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Signature Industrial Park  
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enquiry@maribumistarchtech.com



(603) 7958 7857



Maribumi Starchtech



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MSSB Compostable Bags



Maribumi Starchtech



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