山中産業株式会社
YAMANAKA IND. CO.,LTD.

KYOTO JAPAN
OGINO-CHO 17 HANAZONO UKYO-KU KYOTO 616-8054 JAPAN
TEL:81 75841-4682 FAX:81 75841-4757 URL:http://www.yamanaka-sangyo.jp
E-MAIL:kashima@yamanaka-sangyo.jp

TO : Nasa corporation
Address :
Tel : 03-3262-3377 Fax: 03-3238-0073
Attn : T. Agata
Date : 8th November 2004
Subject : Material certificate

Material certificate

This "SOILON" filter proves that it is the thin textile woven with 100% of poly lactic acid mono-filament yarn.

We confirm that the above material doesn't contain any additional chemicals

The above material is the same material that is sold by Nasa Corporation.

Sincerrly,
Yamanaka Industory Co., Ltd.
M.kashima

M. Kashima

Japan Food Research Laboratories
Authorized by the Japanese Government

HEAD OFFICE : 52-1 Motoyoyogi-cho, Shibuya-ku, Tokyo 151-0062
OSAKA BRANCH : 3-1 Toyotsu-cho, Suita-shi, Osaka 564-0051
NAGOYA BRANCH : 5-13 Oosu 4-chome, Naka-ku, Nagoya 460-0011
KYUSHU BRANCH : 1-12 Shimogofuku-machi, Hakata-ku, Fukuoka 812-0034
TAMA LABORATORY : 11-10 Nagayama 6-chome, Tama-shi, Tokyo 206-0025

ANALYSIS CERTIFICATE

No. 203091631-002 1/2
October 7 2003

Requested by: Yamanaka Ind. Co., Ltd.
17 Hanazono-Ohgino-cho, Ukyo-ku, Kyoto-shi
Kyoto 616-8044
Japan

Sample: TEAROAD Soilon

Received: September 22, 2003

This is to certify that the following result(s) have been obtained according to our analysis on the above-mentioned sample(s) submitted by the client.

RESULTS

Standards for Apparatus and Container-Packages "Synthetic resin"[*1, *2]

General standards

Materials test

Cadmium and lead:	conformable

Elution test

Heavy metal:	conformable
Quantity of $KMnO_4$ consumed:	conformable (1.0 ppm)

Elution test[*2]

Antimony (Solvent: 4 V/V% acetic acid)[*3]:	not detected (LD[*4] 0.05 μg/ml)
Germanium (Solvent: 4 V/V% acetic acid)[*3]:	not detected (LD 0.05 μg/ml)

Evaporation residue

(Solvent: n-heptane)[*5]:	not more than 5 μg/ml
(Solvent: 20 V/V% ethanol)[*6]:	not more than 5 μg/ml
(Solvent: water)[*3]:	not more than 5 μg/ml
(Solvent: 4 V/V% acetic acid)[*3]:	not more than 5 μg/ml

*1 By the method of Notification No. 370 (1959) Specifications and Standards for Foods, Food Additives, etc.: Ministry of Health and Welfare of Japan.
(Type: used at the temperature exceeding 100 ℃)

*2 The surface area of the sample was determined based on the data provided by the client (23dtex and specific gravity: 1.27).

*3 Conditions: extraction by soaking in 2 ml specified solvent per cm^2 of surface area of the sample at 95 ℃ for 30 minutes.

*4 LD: Minimum limit of determination

*5 Conditions: extraction by soaking in 2 ml specified solvent per cm^2 of surface area of the sample at 25 ℃ for 1 hour.

*6 Conditions: extraction by soaking in 2 ml specified solvent per cm^2 of surface area of the sample at 60 ℃ for 30 minutes.

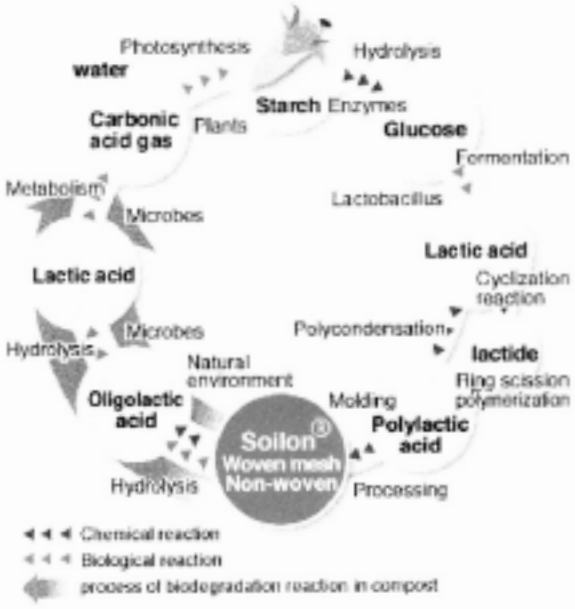
JAPAN FOOD RESEARCH LABORATORIES

Noriko Imaizumi
Principal Investigator
Japan Food Research Laboratories

How to manufacture "SOILON":

"SOILON" is made of polylactic acid(PLA) polymer resin by lactic fermentation of glucose derived from starch (such as corn starch) by an enzyme and polymerization. By thermal-polymerizing of lactic acid, an aliphatic polyester resin having 170 melting point and 57 second order transition point respectively is gotten. Due to its plastic character, PLA can be melt-spun into fibers (filaments) which are woven for beverage filter media.

Biodegradation of Poly Lactic Acid



Physical properties

Product number	Mesh count Filments/inch	Open space ratio(??g)	Remarks	Seeling adaptability
48374	97	62	Transparent Type Enviromentaly Correspondin	Ultrasonic seal
48374SB*	97	62	Semitransperent Type Enviromentaly Correspondin	Ultrasonic seal

_ Material: Polylactic acid

_ Product No. 48374SB is produced according to the customer's request

* The above physical properties are measured, but are not guaranteed.

. The values are subject to change.

Bio-degradation rate:

"SOILON" decomposes rapidly when it is put into compost of organic material but does slowly when it is used in usual circumstances.

Mechanism of bio-degradation of "SOILON":

The degradation is initiated by temperature, moisture and alkaline material and is completely degraded by acceleration of microorganism after some rate of degradation.

Time required for form collapse of "SOILON":

The time required for form collapse of "SOILON" is approximately 5 3 days when it is kept in compost and approximately 3 05 years in soil or water.

Break down in Compost