

Test Report on Laundry Mag-Chan

Miyamoto S-S Co., Ltd.

Theme of the test	Test for determining the ability to decompose sebum on laundry	Date created	2013/12/11
Test period	July 8, 2013	Implementation bodies	Shimadzu Techno-Research, Inc. Report No. KC-64630

(1) Test objective

Determine the cleaning effect of an aqueous solution of magnesium hydroxide (weak alkaline) containing hydrogen generated with the aid of the Laundry Mag-Chan by comparison with existing liquid detergents in terms of how much of the sebum on clothing worn normally for a day can be removed. The cleaning effect is the measurement of the amount of sebum (triolein) reduced by the sample.

Photos of samples



Soaked cloth + Laundry Mag-Chan



Laundry detergent + Laundry Mag-Chan

(2) Analysis method

1. Creation of calibration curve

(i) Standard triolein was diluted with hexane to prepare a standard solution (1,000 µg/mL). Tricaprin standard solution (8,000 µg/mL) was used as the internal standard substance.

(ii) One microliter of the prepared standard solution was injected into a GC-FID to obtain the area of triolein, which was then corrected to the internal standard substance to create a calibration curve using the internal standard method.

2. Analysis of samples

(i) Cloths were soaked with about 50 mg of triolein dissolved in hexane and then air-dried. Three different types of samples, which were soaked cloth + Laundry Mag-Chan, soaked cloth + laundry detergent, and soaked cloth + Laundry Mag-Chan + laundry detergent, were added with an appropriate amount (2 L) of ultrapure water, stirred for 60 minutes in a stirrer, rinsed twice with ultrapure water (approx. 1 L), and air-dried. Then, residual triolein was extracted with hexane (500 mL) from the soaked cloths. Note that the laundry detergent was added according to the instructions for use to match the amount of ultrapure water specified for this test. A cloth soiled with about 50 mg of triolein was air-dried for direct extraction of triolein with hexane (500 mL). (Soaked cloth only)

(ii) A solution of the extract prepared above was added with tricaprins as the internal standard substance and injected into a GC-FID to determine the concentration from the area of triolein.

(3) Photo of pretreat



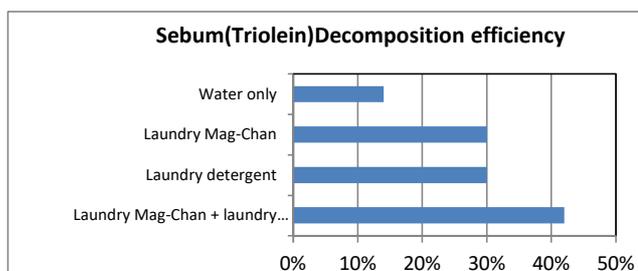
Triolein added



Under stirring

(4) Measurement results

Samples for analysis	Triolein (mg)	Concentration	Decomposition power
Laundry Mag-Chan + laundry detergent	29	580.5	42%
Laundry detergent	35	687.4	30%
Laundry Mag-Chan	35	704.9	30%
Water only	43	851.3	14%
Soaked condition	50	1000.0	0



Comments on the test results

It was found that the magnesium water produced with the aid of the Laundry Mag-Chan matches commercially available laundry detergents (liquids) in terms of the ability to decompose sebum (triolein). It was determined that the Mag-Chan shows a higher cleaning effect when used in combination with a detergent.

Implementation supervisor

