



Features and effectiveness of Eco-friendly Soap-based Class A Foam For forest fire and peat fire control



Shabondama Soap Co., Ltd.



Company introduction

Corporate Vision : Protect healthy body and clean water



Head office: Wakamatsu-ku, Kitakyushu city, Fukuoka Prefecture

Establishment: 1910

Sales: 8,7 billion yen

Capital: 100million yen

Employee: 147 staffs (including Person with disability: 1, Aged: 4)

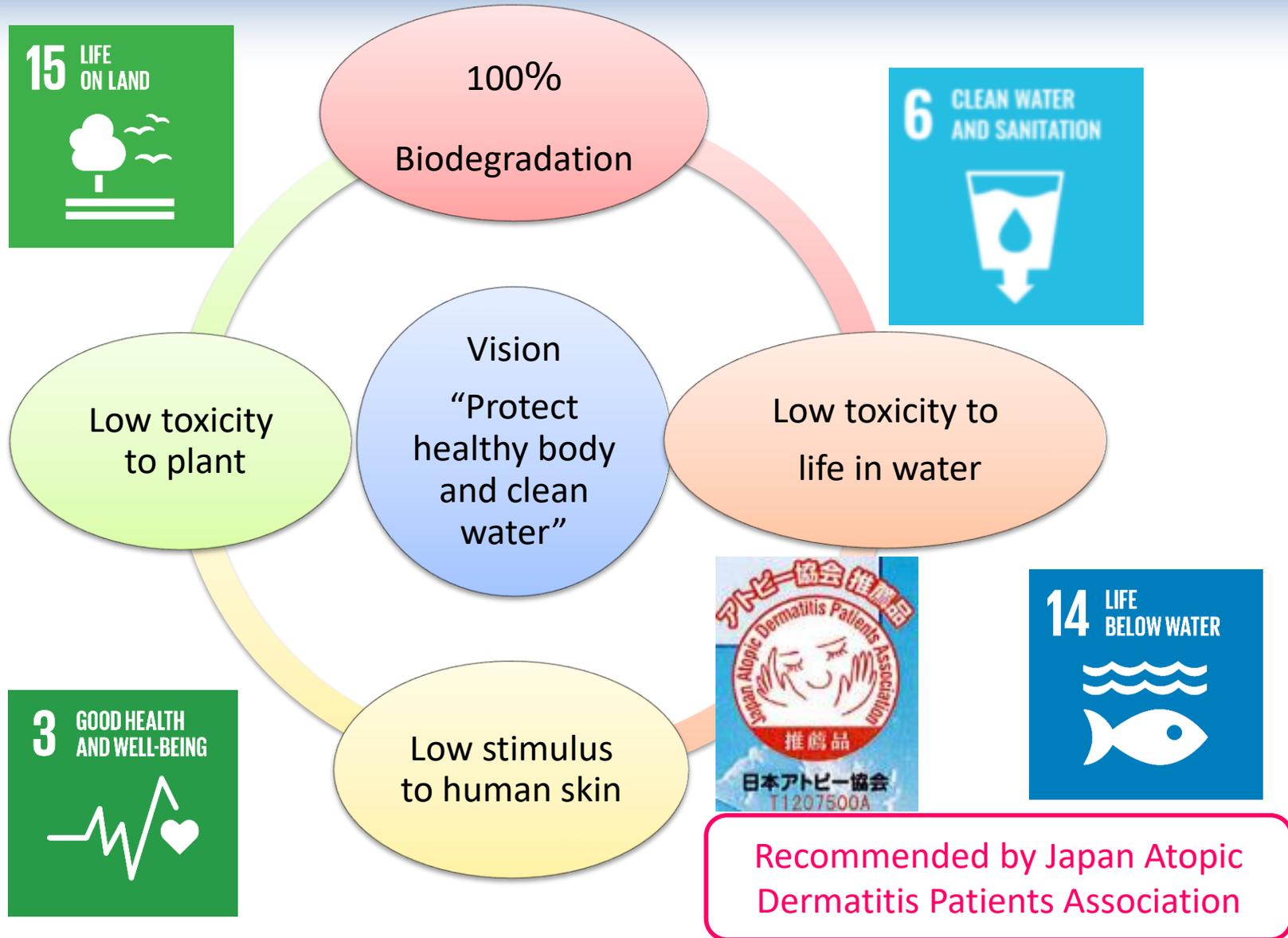
(Average age: 34, Male : Female ratio 4 : 6)

Company introduction



<Manufacturing Products>
Additive-free soap
Shampoo, conditioner
Toothpaste
Bleach · baking soda
Fire fighting agent

About soap



Products based on the vision “Protect healthy body and clean water” contributes to the goal 3 (Health), 14 (Ocean), 15 (Land)

Background for Development of Soap-based Fire-fighting Foam

1995 The Great Hanshin–Awaji Earthquake

1999 Use of chemical firefighting foam by Kitakyushu City
Followed by Tokyo Fire Department



2001 Development of a new fire fighting foam based on soap
Kitakyushu Fire Department, Shabondama Soap, Furukawa Techno Material

2003 Initiative by Fire and Disaster Management Agency to promote science
and technology for fire prevention
Participation of University of Kitakyushu

2005 Development of a new fire fighting vehicle for a new fire fighting foam
Participation of Morita Corp.

2007 Sales of “Miracle Foam”, “Miracle CAFS”

Soap-based ClassA Foam

High firefighting effect

Wettability, Penetrability



Fast defoaming

Bubbles disappear immediately

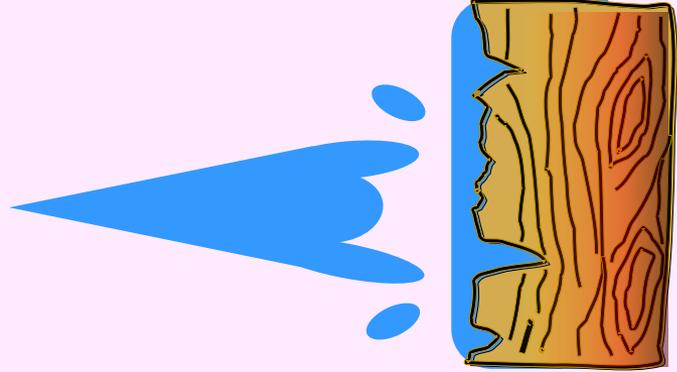
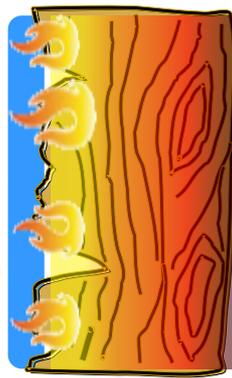
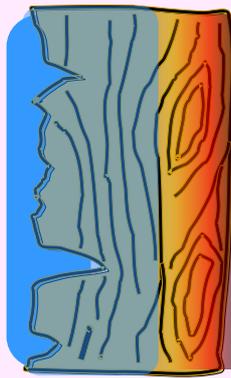
Eco-friendly

Low toxicity, 100% Biodegradation

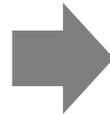
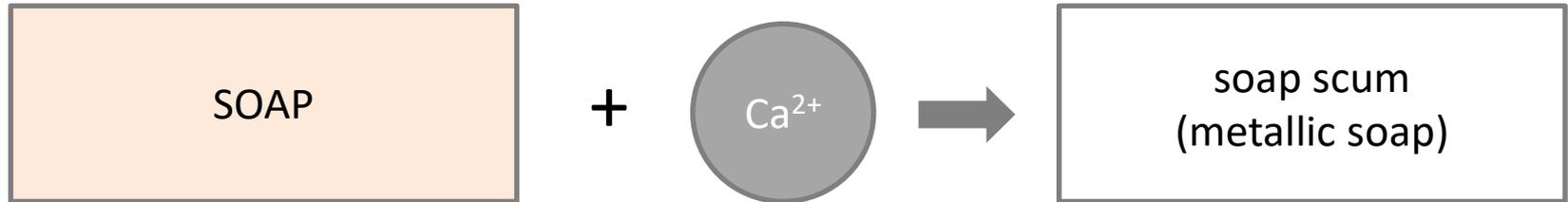


Soap-based ClassA Foam is specifically for fresh water and the concentration for use is 1%.

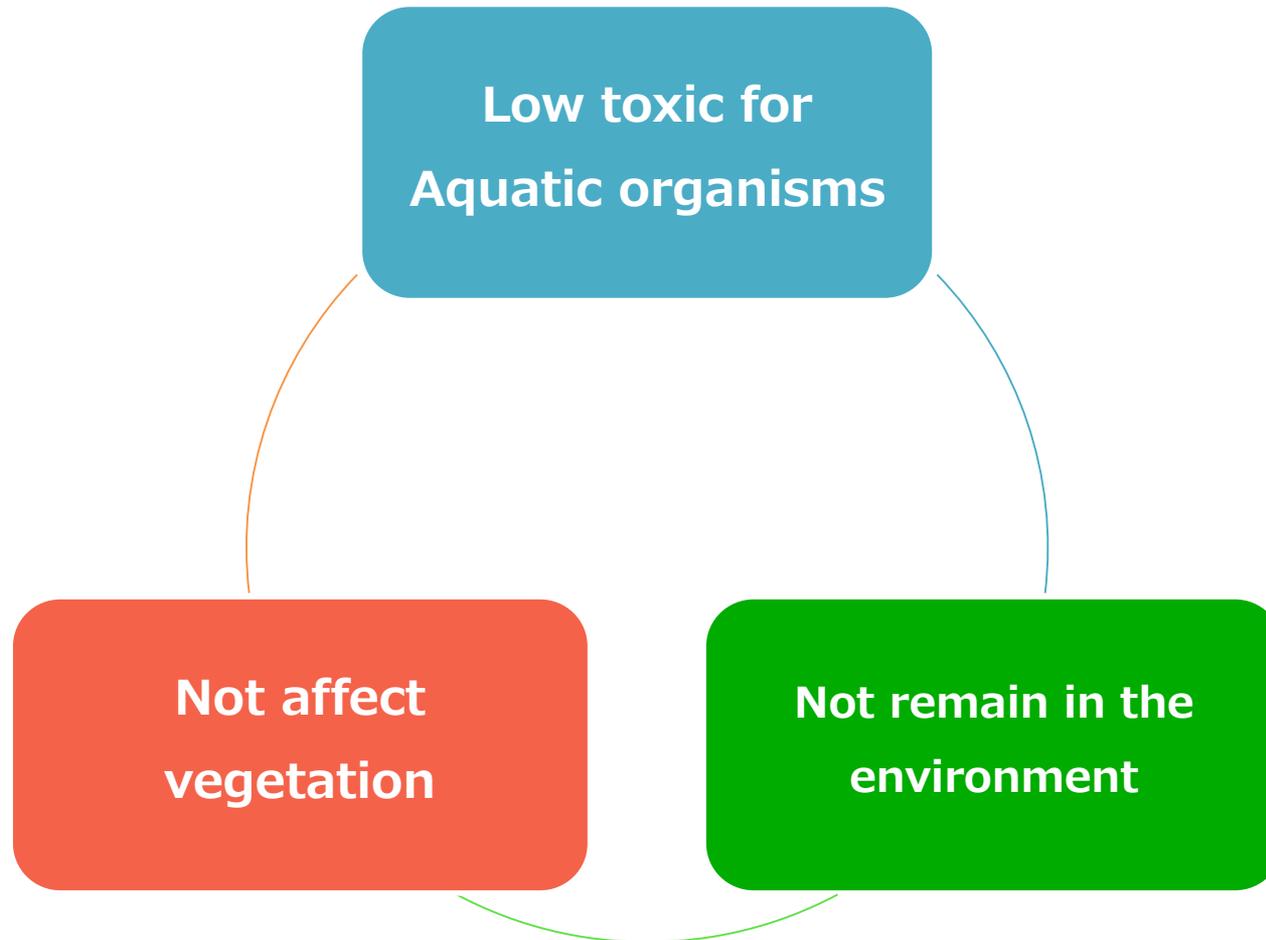
Why is foam that a fire extinguishing effect is high?

	Water	Firefighting agent
Wettability	 <p>Water spray is shown hitting a log with flames. The water droplets are scattered and do not penetrate the surface.</p> <p>Hard to get wet</p>	 <p>Firefighting agent spray is shown hitting a log. The spray is more cohesive and penetrates the surface of the log.</p> <p>Easy to get wet</p>
Penetrability	 <p>Water is shown on the surface of a burning log, unable to reach the fire source.</p> <p>Hard to penetrate</p>	 <p>Firefighting agent is shown penetrating the surface of a log, reaching the fire source.</p> <p>Easy to penetrate</p>

Fast defoaming



Eco-friendly



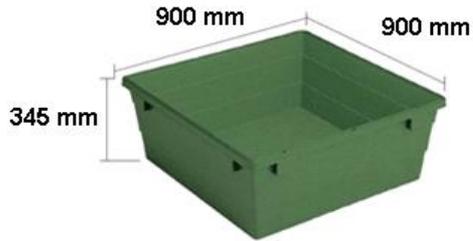
Low toxic for Aquatic organisms

Toxicities(LC₅₀) of Firefighting Foams in *Oryzias latipes*

Brackish water	at 12 hours (ppm)	at 24 hours (ppm)	at 48 hours (ppm)
Soap based firefighting foam	4000	1330	650
Commercial product A	15	7.5	7.5
Commercial product B	65	55	20
Commercial product C	65	20	20
Commercial product D	185	133	73

Low toxic for Aquatic organisms

Model biotope test



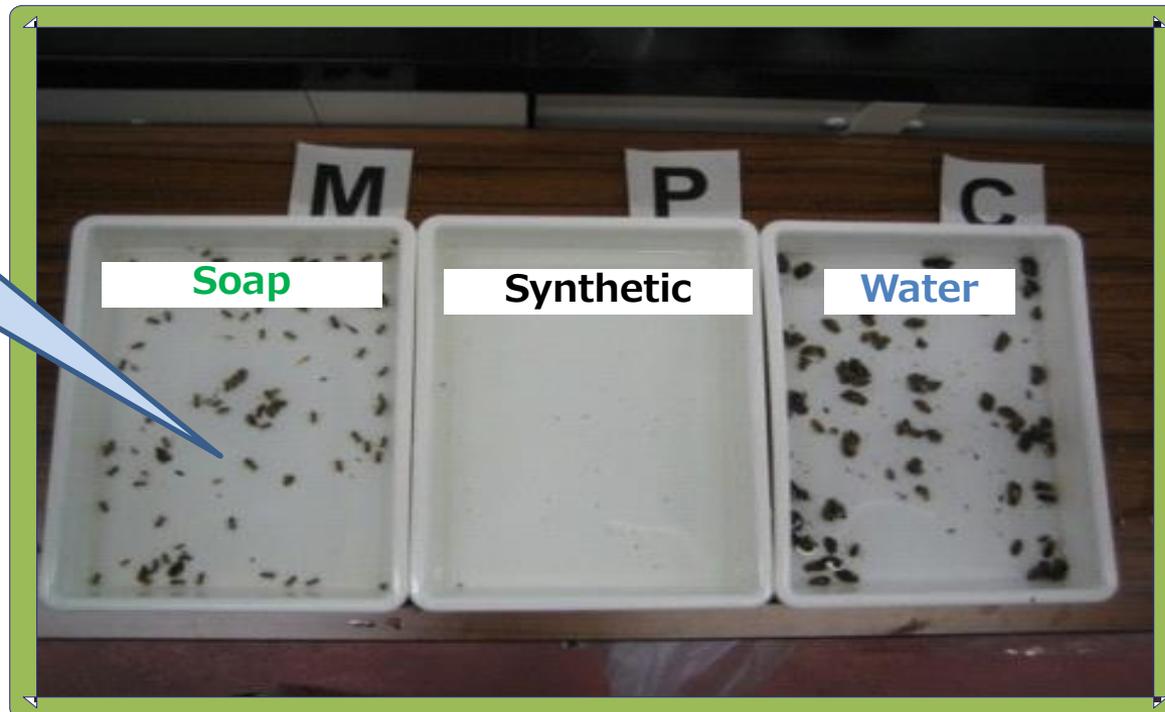
Before



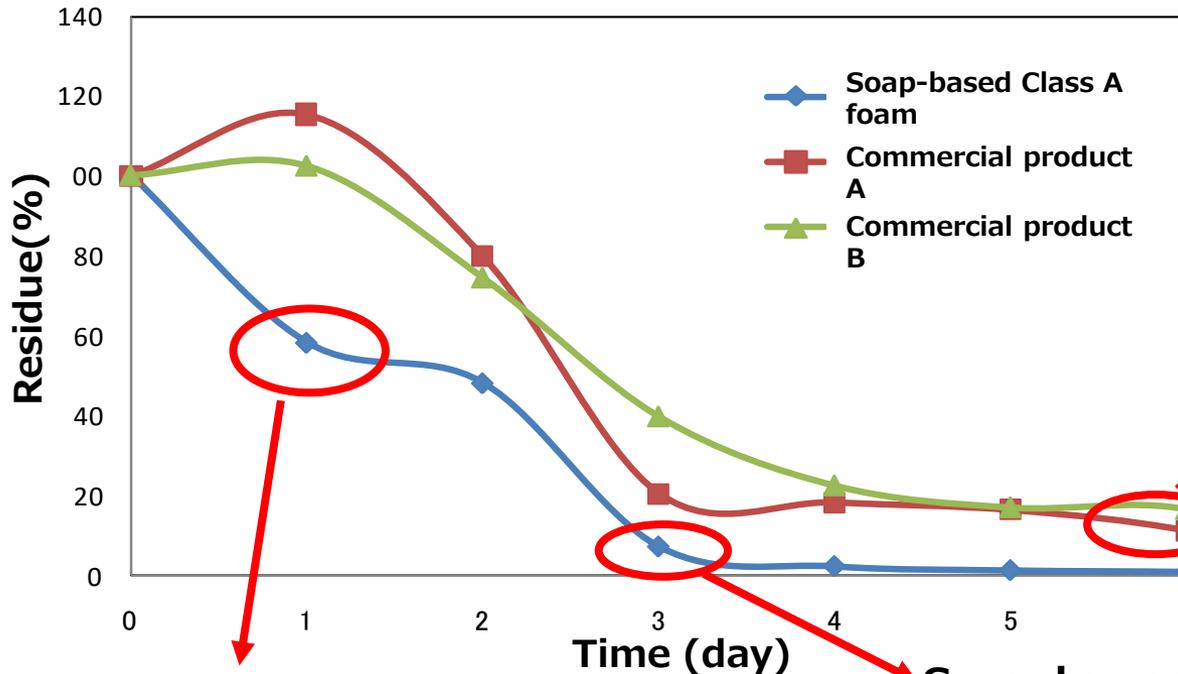
Spraying



7 months later



Not remain in the environment



Concentration : 1000
[mgCOD/L]
Temperature : 25°C
Phosphate buffer (pH=7.2)
500 ppm

The commercial products:
About **20%** was remain

Soap-based Class A foam :
About **40%** was degraded

Soap-based Class A foam :
About **90%** was degraded

Low impact on the ecosystem

Test Laboratory: Research and Development Center of
Fire and Environmental Safety, The University of Kitakyusyu

Not affect vegetation

	Soap-based	Water
Before	 A photograph of a garden bed enclosed by corrugated metal sheet piling. The ground is covered with brown mulch and some green plants are visible. The background shows a house and trees under a hazy sky.	 A photograph of a garden bed enclosed by corrugated metal sheet piling. The ground is covered with brown mulch and some green plants are visible. The background shows a house and trees under a hazy sky.
After	 A photograph showing the garden bed after treatment. The ground is dark and appears to be covered in a thick layer of white foam or residue. Several people are standing around the garden bed, and a white banner is visible in the background.	 A photograph showing the garden bed after treatment. The ground is dark and appears to be covered in a thick layer of white foam or residue. Several people are standing around the garden bed, and a white banner is visible in the background.
9 months later	 A photograph of the garden bed 9 months later. The ground is covered with a dense layer of green vegetation, including various leafy plants and small trees. The corrugated metal sheet piling is still visible.	 A photograph of the garden bed 9 months later. The ground is covered with a dense layer of green vegetation, including various leafy plants and small trees. The corrugated metal sheet piling is still visible.

Wild fire



For wildfire

Firsthand verification of firefighting efforts



Results Firsthand verification confirms a definite level of effectiveness

Verification that the spread of fires is prevented



Results Spread of fire was effectively prevented

Presentaiton and exhibition



FDSC
WHERE LEADERS COME TO TRAIN

April 16-21, 2012
Indiana Convention Center &
Lucas Oil Stadium Indianapolis, IN



WILDFIRE 2011
The 5th International Wildland Fire Conference

South Africa

May 9-13

Thank you for your attention.

