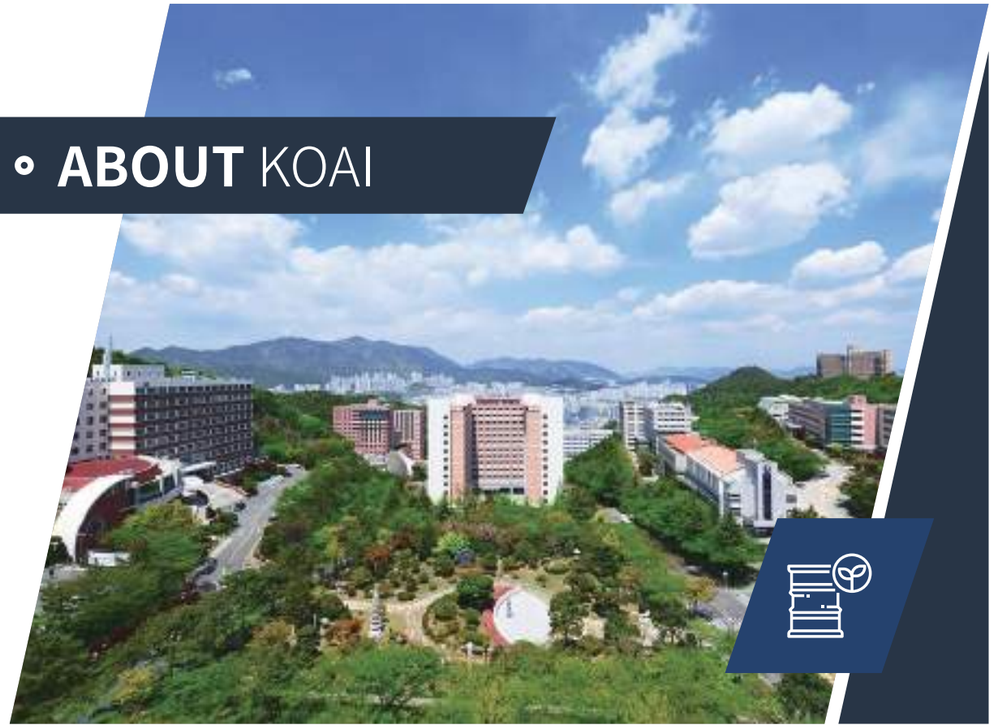
Korea Oil separate Assistance Institute

KOAI

A Pioneer in the Pursuit of a Pure and Clean Sea for *A Beautiful Future Environment.*

We are a research, development and production company of marine pollution control equipment. Through our company is striving for research and development with the dream of seeking to solve the problem of marine pollution in the world.

ABOUT KOAI



In the year 2021, there were a total of six oil tanker spills around the world. Five incidents had a release volume of 700 metric tons.

Even though In the last two decades the amount of oil leaked by tanker spills generally declined, oil spills present the potential for enormous harm to deep ocean and coastal fishing and fisheries. The immediate effects of toxic and smothering oil waste may be mass mortality and contamination of fish and other food species, but long-term ecological effects may be worse. We, at KOAI, wish to imagine a pure marine environment.

OUR VISION

KOAI accelerates the dream of seeking to solve the problem of marine pollution in the world.

OUR MISSION

is to research, develop and product marine pollution control equipment for the clean ocean.

COMPANY HISTORY

CONTINUOUS GROWING

We grew into a professional marine pollution control company dealing with one-man control equipments and large-scale control equipments.

2022

Participation in exhibitions

Participated in CES exhibition in January 2022

2021

Participated in numerous exhibitions and won the Mayor's Award in Busan

- May, 2021 Participated in the 2021 IOSC (International Oil Spill Conference) exhibition · Ygnite 2020 won the Beyond the limits award at the local VC participation competition
- Aug. 2021 Received the Busan Metropolitan City Mayor's Award at the Entrepreneurship Competition using Public and Big Data · Exported 4 types of marine FLOAT to Japan (USD 58,000)
- November, 2021 Participated in the 2021 Europort exhibition in Netherlands
- November, 2021 Participated in the 2021 Abu Dhabi Oil & Gas ADIPEC Exhibition
- Dec. 2021 Awarded a letter of appreciation from the Busan Metropolitan City Council Chairman

2020

Continued development to diversify marine pollution control mechanisms

- Completed technology transfer from Korea Ocean Science and Technology Institute
- Ygnite 2020 won the Beyond the limits award at the local VC participation competition
- Registered trademark for oil spill recovery (China)
- Exported 4 types of marine FLOAT to Japan (USD 58,000)

2019

ELASTEC Korea Distributorship Agreement

- Established periods
- Planned an international marine disaster
- Coping conference to commemorate the 10th anniversary of the Hebei Sprit accident
- Established of Busan R&D Special District Research Institute Company
- Established R&D Center
- Ministry of the interior and Safety R&D project in progress 10th anniversary of the Hebei Sprit accident

2018

Commercialization of the main products of the marine pollution control equipment

- Marine Police Research Center held a demonstration (Marine Police Commissioner attended)
- Patent : Fence-type Fenders Using Wind Powerfour other cases
- Navy Logistics Command demonstrations held
- Participated in INTERSPILL London 2018
- Participated in MIOGE Moscow 2018
- Participated in 2018 Hamburg SSM
- Participated in ADIPEC 2018 · Participated in MIS Indonesia 2018

2017

Establishment of KOAI Co., Ltd.

Establishment of KOAI Co., Ltd. Planning of International Maritime Disaster Response Conference on the 10th anniversary of the MT Hebei Spirit oil spill

MEET OUR **TEAM**

We Are A Manufacturer Specializing In Marine Pollution Control Equipment.

KOAI provide a safe work environment and the opportunity to be part of a working culture based on respect and teamwork, which strives for excellence and encourages everyone to give of their best, aim high and get the project success. We show a steady development in tools and skills and process of performance to separate and collect oil.

Tony Park Cheif Executive Officer

dqtoys11@daum.net

Tony has built his career in plastic mold manufacturing and forming field for more than 20 years. Based on that experience, he has performed a national R&D project to develop many marine pollution prevention instruments.

Seul gi Ju Head Researcher

seul_2s@koai.co.kr

She majored in shipbuilding and maritime engineering. Conducted more than 20 actual sea area tests and a number of national R&D project planning and responsibility studies

Dong yeop Lee Head Researcher

yeop0919@nate.com

He majored in mechanical engineering.
3D design is in progress and many have participated in marine pollution disaster prevention research and development

R&D AREAS

It is currently producing and developing equipment for localization of oil retreiving devices that are dependent on imports, representing companies leading the clear and clean sea, and beautiful future environment. We are currently working on joint researches and developments in cooperation with various institutions, and we are actively testing in the real sea.

V2.0 Scoopers

Specially coated V2.0 SCOOPERS is a marine pollution control equipment that can selectively retrieve only spilled oil from river or ocean.

Oil Square

It is a prefabricated oil tank for easy storage of spilled oil with V2.0 SCOOPERS.

Automatic Spilled Oil Collecting Device

Automatic spilled oil collecting devices for large area which are under development is a device that can respond to spillage accidents quickly and effectively.

4 Types Of Marine Floats

Buoyant bodies that can form a stable center of gravity are installed at regular intervals to help connect the instruments, and it is durable in external forces.

The Backpack Type Oil Collector

A control operation possible by using a compact oil collecting device on sites where bulky control equipment is inaccessible.

RESEARCH **PARTNERS**

Automatic Spilled Oil Collecting Device **For Large Area**

KOREA COAST GUARD

With cooperation from KCG, the company is conducting a test on the real sea area of Pyeong taek port, Gwang yang Port

KIST

With cooperation from KIST, the company is conducting oil experiments on kerosene and bunker C oil at the REAL SEA in Yeongdo

SEOUL NATIONAL UNIVERSITY

With the cooperation of Seoul National University, it is jointly studying exper imental and research projects with Seoul National University

MAJOR TECHNOLOGIES

- Unmanned Self-Propelling Spilled Oil Collecting Device Technology
- Non-Powered Spilled Oil Collecting Device Technology Towed By A Small Fishing Boat
- Super Water-Friendly Nano Surface Treatment Technology
- Spilled Oil Information Obtaining Technology Using Drones
- One-Man Work-Possible Backpack Spilled Oil Collecting Device Technology

Common Needs

Motive Power Is Needed

A power pack using oil pressure, electric, and pneumatic motors is required as the activation method.

A Water Surface Cleaning Ship Is Needed

As more than 90% of mobillized ships do not have specialized equipment for the prevention of pollution and repeated manual work is carried out, there is a lack of pollution prevention.

Storage Space Is Needed

Space to store collected oil spill is required, after collecting the spilt oil.

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V 2.0 SCOOPERS

Through coating oil scooper's surface, only spilled oil can be selectively collected in rivers or seas

01 Due to scooping type, disaster prevention workers can easily handle V2.0 SCOOPERS.

02 Occupying smaller area and generating higher efficiency than oil skimmers and oil booms.

03 Usable for all kinds of oil.
(removable oil level:1~10,000 cSt, ※ cSt: the unit of viscocity)

04 Use method is simple, and thus no pre-disaster prevention training is needed

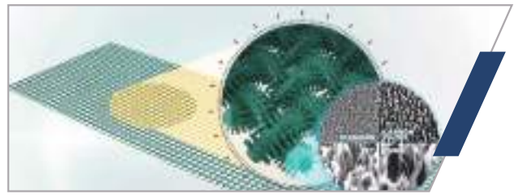
V 2.0 SCOOPERS | V 2.0 SCOOPERS 320 x d 212 (mm)

Based on the nano structure, only spilled oil can be selectively collected in rivers or seas.

- Due to scooping type, disaster prevention workers can easily handle the OIL SCOOPER.
- Occupying smaller area and generating higher efficiency than oil skimmers and oil booms.
- Usable for all kinds of oil.
- Use method is simple, and thus no pre-disaster prevention training is needed.

Hydrophil and oil repellent surface with high aspect ratio on the OIL SCOOPER's surface has the property disliking oil. When the mixture of water and oil is made pass through, only water passes through, while oil cannot pass through

Introduction to Product Principles



01

It can be easily separated on the surface of an oil platter.

02

Water passes through, oil does not.

03

Water goes through, oil doesn't go through. When a mixture of water and oil is passed, the oil is not passed, but only water is passed selectively.

Applications

Development Of Marine Spilled Oil Collecting

About Problem

Bulky

not only is the transportation and storage inconvenient due to the bulky and heavy equipment, but a crane is also needed for the marine installation. Therefore, a lot of time is required for the oil collection device transporation to the installation after an accidental oil spillage

Impossible For One Person To Use

Many pollution prevention workers are needed, because the prevention of pollution is impossible by one person.

A Power Pack Is Necessary

There is limited activation range due to activation through oil pressure, and electric and pneumatic motors.

Development Of Marine Spilled Oil Collecting Device Technology

One disaster prevention worker can activate the device, and worker's fatigue is very low.

Spilled oil can be collected in a simple method around coast or from a small boat.

Transportation and storage are convenient with the development of compact equipment, and the equipment is effective for oil spillages in narrow areas.

Backpack-Type One-Person Oil Collection Device

- Small, light oil collecting device specialized for initial response to oil spill situations
- Portable, single person operation
- Five-minute setup for rapid operation on arrival
- Spilled oil collecting device that is compact enough to fit in the trunk of a vehicle
- Collect oil with simple operation on shore or from small fishing boats
- Effective for collecting spilled oil within 1-3m

Introduction to Product Principles

01 Compact Size

02 Single-Person Portability

03 Quick Setup

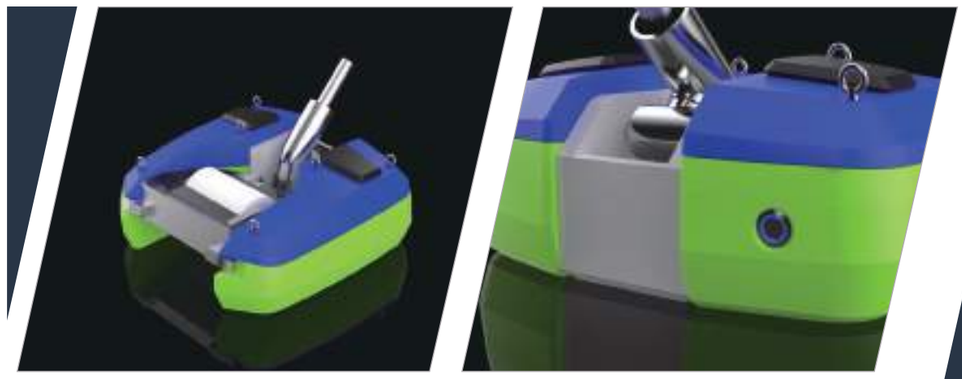
04 Fit In Personal Vehicles

05 Simple Operation

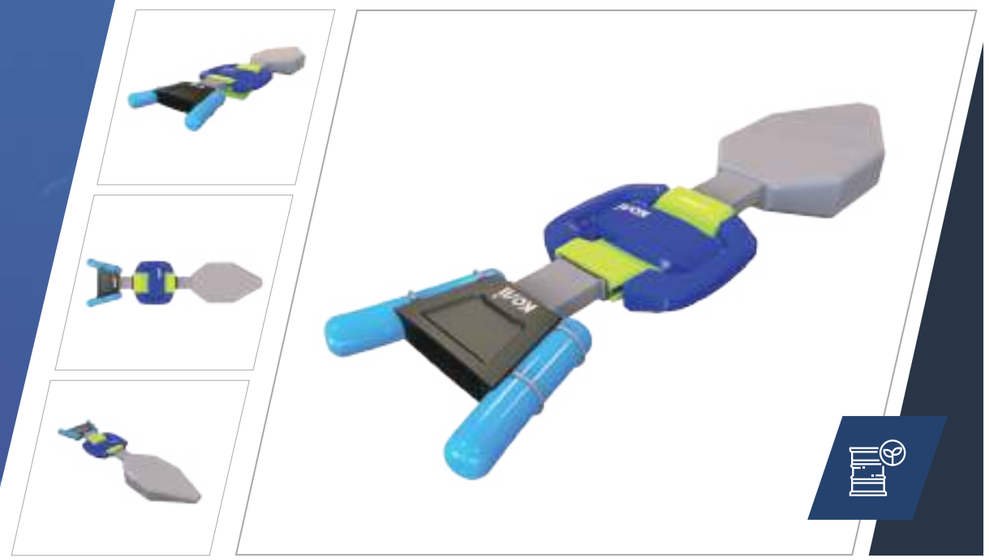
06 Efficient For Near-Site

- The backpack type oil collector is not only able to control by using a compact oil collecter on a site where a bulky control equipment is not accessible, but it is also a one-man operation system, so it can effectively control with less control manpower within 48 hours of golden time.
- The backpack type oil collector is a device that can cope with a problem of secondary treatment cost after collecting oil using absorbents by using an ineffective control method that simply repeats spraying and recovering in oil spill area.
- One operator can operate it for an oil spill control operation, so the level of the worker's fatigue is very low.
- Spilled oil can be retrieved by simple operation on the shore or on a small fishing boat.
- It is a compact oil retrieval equipment which makes it easy to move and store. So, it is suitable for spill accidents in a small area.

3D Product View



Automatic Spilled Oil Collecting Device



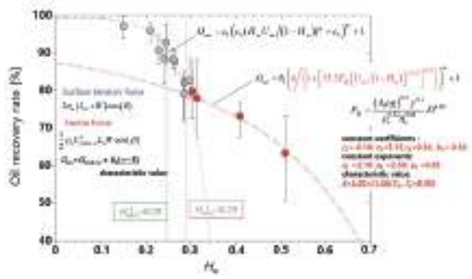
Quick and effective response to oil spill accidents (high efficiency, wide area and automation)
All-in-one attachment/detachment system : spilled oil gathering-collection-storage

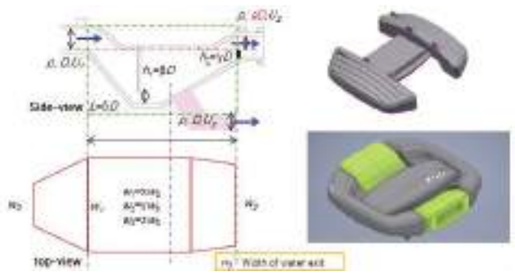
- Usable by installing in costal fishing boats, not existing disaster prevention ships.
- Spilled oil gathering, collection, and storage become easy with dismountable all-in-one system.
- Automatic spilled oil collecting device for large area can quickly and effiectively respond to spilled oil accidents.

Automatic Spilled Oil Collecting Device For Large Area.

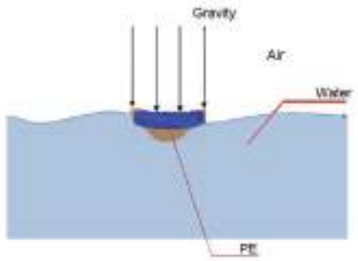
- Can quickly and effectively respond to spilled oil accients.
- Spilled oil gathering, collection, and storage become easy with dismountable all-in-one system.
- Usable by installing in coastal fishing boats, not existing disaster prevention ships.

Development Process Automatic Spilled Oil Collecting Device For Large Area.



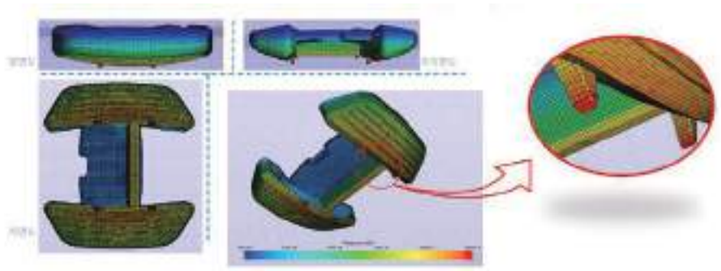


- Making an oil collection rate prediction model according to the operation conditions through an interface kinetics analysis



Models	Value
The force of gravity	9.81 m/s^2
Density of water	1 g/cm^3
Wave	Heavy : 997.561 Kg/m^3 Light : 1.18415 Kg/m^3
Mass of the blue model	154.808 Kg
Mass of the orange model	24.405 Kg

- An interpretation is conducted through an implicit unsteady analysis, and the results are generated according to how much time passes (Maximum time step is 10sec)
- To achieve the “float” shape, select the Eulerian Multiphases model, select all domains, and make an make an inter-pretation by classifying all the domains into water and air
- The free motion in case of being shaken by a wave is realized with DFDI’s 6-POF bodies model.
- Proceed with PE in terms of the modeling material property of all domains.



- The interpretation result of the buoyancy object is shown above.
- The part most affected by the buoyancy is the same as the part in the enlarged circular diagram.

PRODUCT **TESTING**

Inspired by Nature. Driven to Protect it.

Field sampling is essential to monitor the impact of our cleanup, and it helps shape our strategy. Observational and applied studies are at the heart of our research on oil leak pollution. Systematic and accurate field data enable us to better comprehend the nature and evolution of ocean sustainability.

To refine our knowledge of sources and transport of ocean oil leak, we conduct experimental tests that monitor how different oil is displaced. We look at the actions of wind, rain, and gravity – both on land, as well as in oceanic currents, waves, and wind at sea. What we learn is applied to our analysis, giving us greater confidence when predicting the fate of ocean oil leak pollution and the long-term evolution of ocean oil leak patches if left untouched.

Indoor Experiment

Watch Full Videos

Offshore Experiment

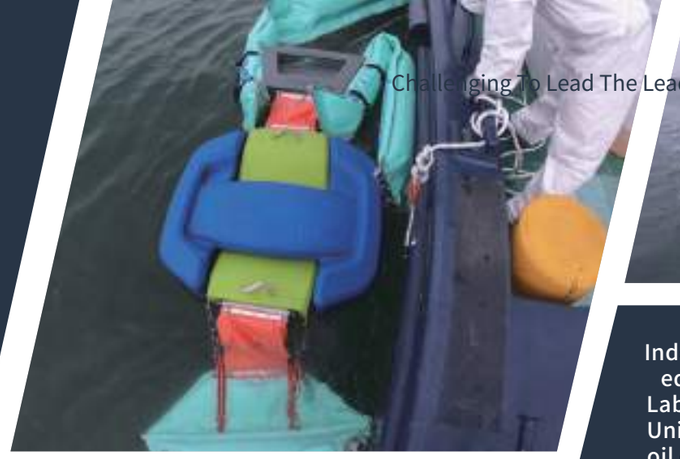
Watch Full Videos

PRESS & PR

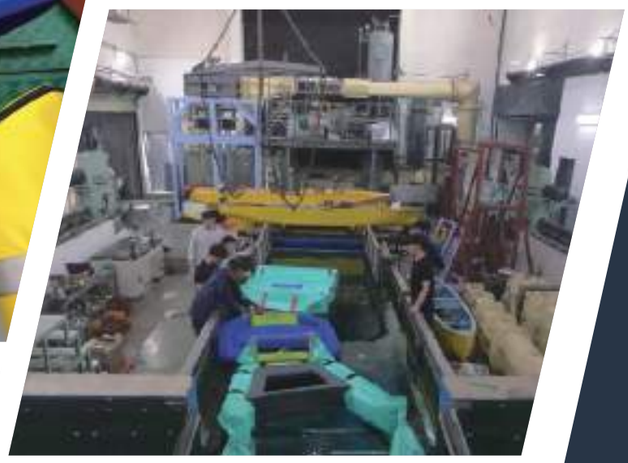
Through our company is striving for research and development with the dream of seeking to solve the problem of marine pollution in the world.

Press Release
Discover More

Ads and PR
Discover More



Indoor testing often conducted at Linear Water Control Laboratory at Seoul National University. Automatic spilled oil collecting device for large area Towing Test



Summary of oil-water separation performance test & Performance Verification According to 2-3knots Towing Speed in Real Sea Area

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