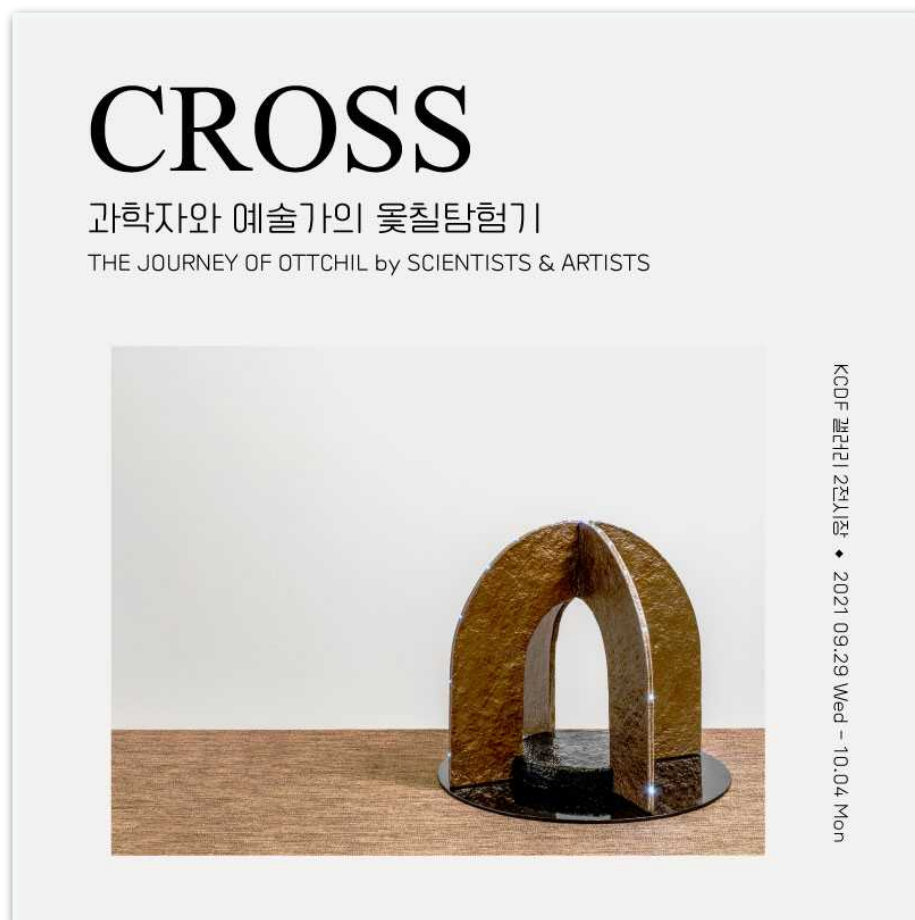


Lacquer, a traditional paint with a history of 5,000 years, discovers new uses by meeting science

- 'CROSS: The Journey of Lacquer by Scientists and Artists' exhibition will be held at KCDF in Insa-dong from 9.29 (Wed)
- School of Materials Science and Engineering Professor Eunji Lee announces a new eco-friendly lacquer material



Recently, lacquer is attracting attention as an eco-friendly material, such as being used as a high-end automobile finishing material and a coating agent for spacecraft parts due to its beautiful color and durability. The development of lacquer has the advantage of being able to expand into high-tech industrial technology and revitalize Korean traditional culture, but its application was limited due to its difficult handling and lack of colors.

In addition, it was difficult to secure product reliability due to the lack of scientific knowledge on the characteristics of lacquer and the lack of characteristics evaluation criteria.

GIST (Gwangju Institute of Science and Technology) announced that it will host an exhibition of "CROSS: The Journey of Lacquer by Scientists and Artists" at the KCDF Gallery in Insa-dong for six days from September 29 to October 4, 2021, in collaboration with the Korea Institute of Science and Technology (KIST), Sookmyung Women's University, and Jicheon Lacquer Art Center.

This exhibition was prepared by GIST School of Materials Science and Engineering Professor Eunji Lee who introduces the characteristics of lacquer materials based on scientific evaluation methods beyond introducing the history of lacquer. This was the first time that a functional lacquer material developed by a scientist and an artist was unveiled.

The research team scientifically investigated the performance of the lacquer according to the origin, amount of urushiol, refining, curing, painting, and color development. In general, it is known that the higher the content of urushiol, which is the main component of lacquer, the better the lacquer, but the correlation between the urushiol content and the actual lacquer film properties is unknown.

The research team revealed that the physical properties of the lacquer film, such as drying time, permeability, adhesion, and hardness, vary depending on the type and content of catechol lipid molecule*, a major component of lacquer. These achievements suggest a new possibility that lacquer can exhibit various physical properties according to production species and materials, and users can select and use lacquer that suits their needs.

*catechol lipid molecule: The main constituent of lacquer, including urushiol, laccol, and tichiol.

Another highlight of the exhibition is a craft painting using functional lacquer material. In general, when people think of lacquer, they think of wood crafts with a dark brown color. This exhibition introduced newly developed functional lacquer that becomes an electric wire by drawing a line, lacquer that can be shaped into objects by kneading them like clay, lacquer that quickly hardens when exposed to light, lacquer that bends flexibly even when it hardens, and lacquer that reflects light wavelengths of a specific color.

CEO of Jicheon Lacquer Art Center Eun-kyung Kim shows various use cases with about 40 crafts and paintings using functional lacquer.

Functional lacquer materials have been developed to expand artistic expressions, such as conveniently using temperature-sensitive lacquer and making it into various colors and shapes, but are also expected to be widely used in various industries such as eco-friendly waterproofing, preservatives, insect repellents, flame retardants and insulators.

The research team said, "In this exhibition, it is possible to reconfirm the status of lacquer as a traditional cultural content and to suggest various uses of lacquer as a craft/painting. In terms of eco-friendly polymer materials, lacquer can also be expected to expand into the cutting-edge scientific and technological field of lacquer materials through fusion with various material technologies."

'CROSS, The Journey of Lacquer by Scientists and Artists' will be exhibited at the KCDF Gallery in Insa-dong for six days from September 29 and will be exhibited at the Jicheon Lacquer Art Center Gallery in Sangju, Gyeongbuk, from October 6 to the end of the year. In accordance with the social distancing guidelines for COVID-19, only a limited number of spectators can enter per hour without a separate opening event.

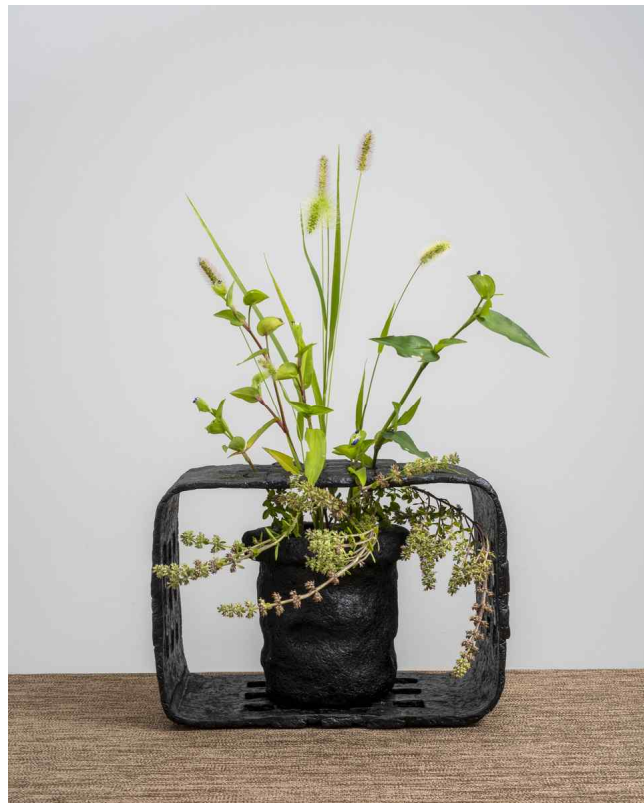
This research was carried out as a cultural technology R&D project of the Ministry of Culture, Sports and Tourism (Minister Hee Hwang) and the Korea Creative Content Agency (President Young-jun Kim).

□ Representative photos (provided by Jicheon Lacquer Art Center)



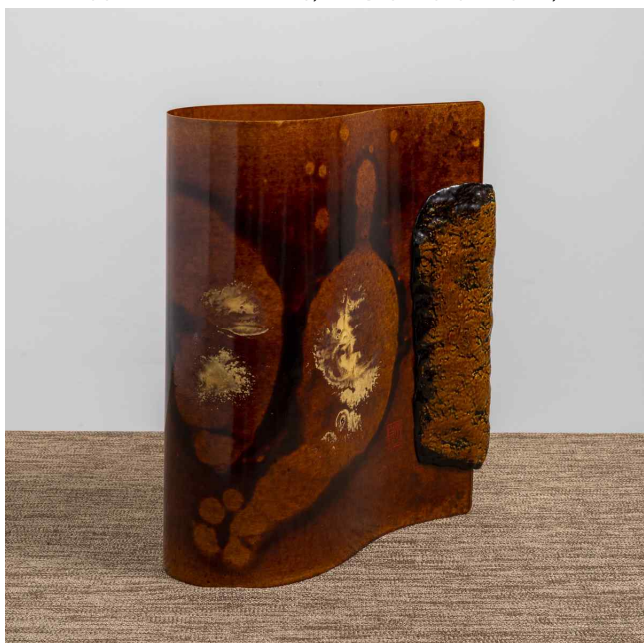
[그림 1] 교차

전도성옷칠-옷칠지점토,
지천 김은경-KIST 임정아, 이상수 박사 연구팀, 2021



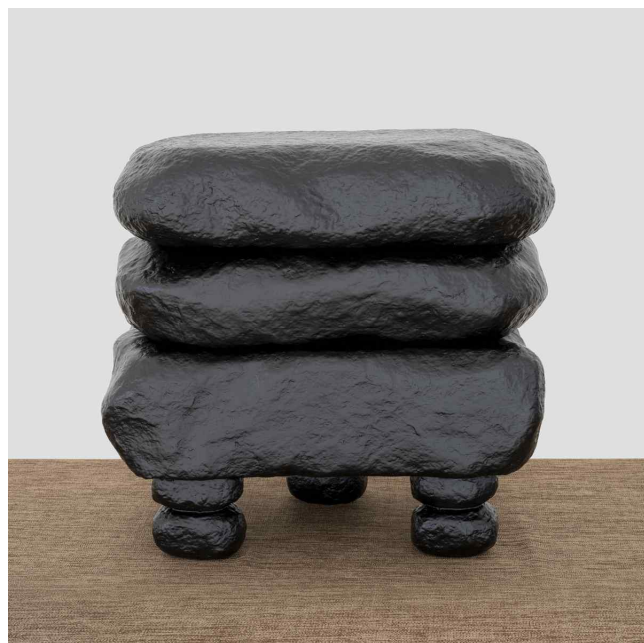
[그림 2] 담시리즈

옷칠지점토, 지천 김은경, 2021



[그림 3] Vase Cozy

유연성옷칠, 지천 김은경, 2021



[그림 4] Papertone

옷칠지점토, 지천 김은경, 2021



[그림 5] 은시리즈

구조색옷칠-옷칠지점토, 지천 김은경, 2021



[그림 6] 담시리즈

옷칠지점토, 지천 김은경, 2021



[그림 7] 담시리즈, 옷칠지점토, 지천 김은경, 2021