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# EMBEDDING YOUR LIFE

## ACRYLIC CONCEPTS

FROM BOTTLES TO FURNITURE,  
ACRYLIC MAKES ITS WAY INTO  
EVERYDAY LIFE







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# PRESIDENT'S LETTER

Welcome to the Pioneer Journal! First off, I'd like to thank you for taking the time to look through Pioneer Chemical's newest publication. In our industry, we often get asked what exactly do you do?

I find that, too often, the chemical industry is associated only with big business, waste, and pollution. Many people don't stop to think that consumer products like shampoos, clothing, and art supplies are all dependent on chemical materials such as acrylic and polymers. Can you imagine a world without color?

Aside from the industrial applications, acrylics offers numerous applications penetrate every aspect our daily lives. This journal hopes to focus on applications that may be smaller in volume (by industry standards), but greater in uniqueness and imagination.

In each volume of this publication, we will showcase a lesser known application that pertains to the arts, tech, creativity, and the future. Artists such as Damien Hurst and Thomas Dang have experimented with the technique of "embedment", creating satire that sparks discussion.

In this first volume, we bring to you a showcase of acrylic embedment and sculpture. We hope that this publication can open more conversation on how Pioneer can work with you as a partner on all applications of acrylic: industrial and beyond.



**Dubing Jiang, CEO**  
**Pioneer Chemicals, Co. LTD.**

*Pioneer regularly attends industry shows to spread the word on our products. Join us at one (or all) of these shows. Make an appointment to learn more about our products.*



Jan 22 - Jan 25  
**LAS VEGAS**

Every year, WOC brings together the most powerful, connected network — new products, innovative technologies, and top education & training — so that you can keep building in the right direction.



Apr 10 - Apr 12  
**INDIANA**

Held every two years, the ACS provides a platform for showcasing the latest technologies and trends in the coatings industry. Hosted by the American Coatings Association in collaboration with Vincentz Network.



May 7 - May 11  
**ORLANDO**

NPE2018 drew more than 65,000 professionals from all segments of the plastics industry — and its related vertical and end-user markets — for the largest, most influential trade event in the plastics industry and its extended industries.



Dec 4 - Dec 6  
**GUANGZHOU**

CHINACOAT has been organized since 1996 and now alternates its venue annually between the cities of Guangzhou and Shanghai. Their last 2017 Shanghai show concluded with a total of 34,425 trade visitors from 88 countries/regions and 1,210 exhibitors from 34 countries/regions.



Held every two years, the Western Coatings Symposium and Show serves the people and businesses that formulate and manufacture coatings in Western USA and Canada. Attendees can expect to come away from our show with a greater knowledge of the newest technical trends and advancements in coatings formulating, as well as an expanded network of key technical contacts in the industry.

The Western Coatings Symposium and Show is the main income-generating vehicle for the LASCT, PNWSCT, GGSCT and ASCT.

The primary mandate of these four organizations is to:

Provide educational and networking opportunities for our members

Award scholarships/grants to students and academic institutions predominantly focused on coatings research or related fields of study.



# WHEN ART MEETS ACRYLIC



*"The Immortal" by Damien Hirst uses an acrylic embedment method to encapsulate this shark.*

Though they are one of the of the most popular products on our shelves, acrylic materials have had a short history. Relative to other beloved painting media like oil and watercolor, both of which have been around for centuries, acrylics have only been in popular use since the mid-20th century. In the latter half of the century, plastic technology advanced so that it was feasible for artists to start using plastic and acrylics as an artwork medium.

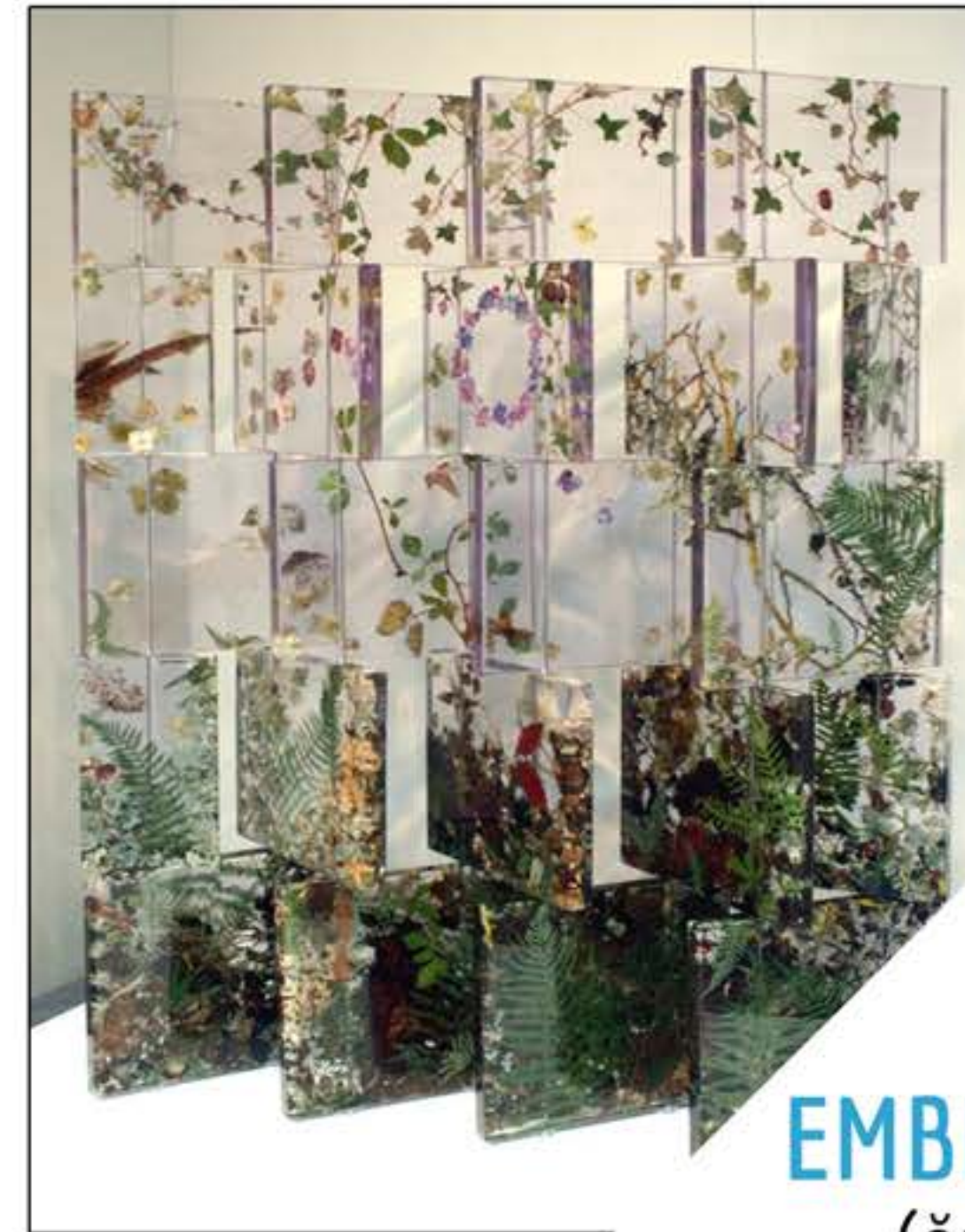
Two of today's most popular artist acrylic brands, Golden Artist Color Inc. and Liquitex, were pioneers in the creation of acrylic paints and mediums. After acrylic resin dispersion was invented in the 1930s in Germany, it was adapted by artist Leonard Bocour and Sam Golden, of Golden Artist Colors Inc., in the creation of the first acrylic paint – a solution of spirit-based paint by the brand name Manga.

The development of acrylic evolved quickly from this point. Sam Golden invented a waterborne acrylic paint called "Aquatec," taking a step closer to the acrylics we know and love today.

In 1955, Henry Levison invented the first water-based acrylic gesso (plaster for sculpture), naming it Liquitex. Acrylics helped open up a whole new world for artists: they could be used to create both watercolor-like thin effects and thick, impasto techniques, and could bind to almost any surface. Their faster drying time and bright colors made them ideal for emerging visual art movements like Pop Art.

In 2007, artist Roxy Paine created a sculpture-making machine "Shumak No2.": a large metal contraption that oozed acrylic on to a conveyor belt that jiggled slowly back and forth. Looking back at this piece now, it seems more like an industrial machine than an art piece. The barely liquid acrylic resin would pile up and solidify. After a few hours, the conveyor belt would move the pile forward and begin a new sculpture. Art made of commodity materials sometimes use found objects made of plastic. Plastic containers are useful in papier-mâché and for building frames....

Continued on next page >



## EMBEDMENT

(ěm-běd)

To fix firmly in a surrounding mass.





# Taking The Right Steps

## 01. Mixed

The process starts with two basic ingredients, an acrylic resin powder and monomer, a crystal clear liquid. The powder and monomer are mixed together in specific proportions. The result is a thick, opaqueliquid.

## 02. Molded

The mixture is hand poured into molds and allowed to partially harden. Objects to be embedded are then hand placed into the acrylic layer. Another layer is poured over the embedded object and the acrylic is again allowed to harden.

Liquid acrylics can be used to create two and three-dimensional plastic images and objects. Artist, Damien Hirst, pours multiple thin layers of pigmented liquid acrylic to form embedments of plastic that result in paintings and sculptures. After adequate drying time between applications, these solid embedment sheets.

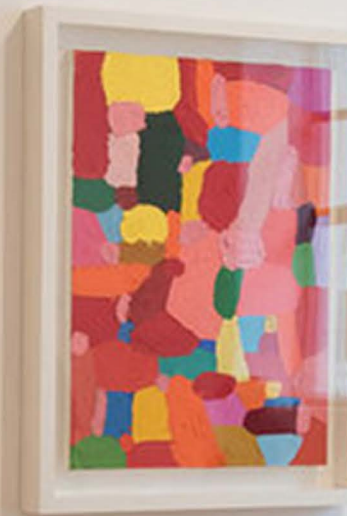
Acrylics have become a staple in the art world. In their relatively short history, the possibilities of this versatile medium with professional grades offering high pigment loads, multitude of viscosities, and dozens of acrylic mediums, the ways an artist can employ acrylics have become endless. Watch our acrylic videos on our YouTube channel and connect with us on our social media platforms!

## 03. Heated

After the acrylic has set to a gel state, the molds are placed into an autoclave (pressurized oven). There, heat of approximately 350 degrees F cures, and pressure squeezes out the air bubbles, to completely harden the embedment.

## 04. Sanded

Three sanding steps are taken to size embedments. Each piece is ground down to size by hand on large industrial sanders, followed by polishing (which brings out the shine and luster), and lastly each piece is hand wiped and inspected.





Our industry is most commonly associated with big business, pollution, and waste. So few people make the connection that products from our industry, give beauty and innovation to the world we live in.

Without the support of our industry, smaller sectors of our business such as art supplies, cosmetic products, and even food would not exist. With that in mind, Pioneer hopes to bring to light more helpful positive applications that focus on aesthetics, creativity, and community philanthropy.

Acrylic was first developed in 1928 in several different laboratories by many chemists and was first brought to market in 1933 by Rohm and Haas Company - Pixelglass.

It was crystal clear with a 93% transparency rate, resistant to water and UV rays, and was low density yet stronger than previous plastics which made it the material of choice for aircraft windows because of the weight and bullet-proof qualities.

- 1993 Juilong Fine Chemicals Established**
- 2003 Restructuring, Pioneer Chemicals was Established.**
- 2012 Pioneer Solutions Americas Inc. established in California.**
- 2013 Pioneer Solutions Europe BVBA established in Antwerp, Belgium.**
- 2013 Pioneer Chemicals HQ moved to Jiading, Shanghai.**
- 2013 Second plant opens, increasing production capacity by 17,000 tons per year.**
- 2014 Pioneer Solutions Asia Pacific Ltd. Was established in Hong Kong**





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