



**Shivena-10**  
Vinyl Neodecanoate

# 新癸酸乙烯酯



Hebei Shield Excellence Technology Co., Ltd.  
[www.tjshield.com](http://www.tjshield.com)

# To Be Leading Supplier of Low VOC Solution



## **Tianjin Shield was set up in 1992**

Making a living by selling detergents to restaurants and earning the first bucket of gold by distributing interleukin -2.

## **High purity solvent for HPLC**

The first products developed and produced by Shield, which filled the blanks of China. (1994)

## **Pyridine-free Karl-Fischer reagent**

Environment-friendly and high precision reagents for measuring water content, which was firstly invented in China. (1995)

## **Pivalic acid and pivaloyl chloride**

The first products of thousand tons scale developed and produced by Shield, which filled the blanks of Asia. (1997-2001)

## **National Key Technologies R&D Programme**

The production technology of Shina / Shivena / Shigena was invented and the products were awarded the national new products by central government of China. (1999-2001)

## **Hebei Shield was set up in 2005**

To realize industrialization and commercializes of Shina / Shivena / Shigena.

## **Shina/Shivena/Shigena came out**

Tertiary carboxylic acids and its derivatives' monopoly was broken. (2008)

## **Winning all the IP lawsuits filed by HEXION**

We have spent 20 years to pursue better technology step by step, so don't be surprised at our achievements and try to stop us today! (2011-2017)

## **No price rising during Momentive's force majeure**

We proved that the world really needs the second responsible supplier of Shina / Shivena / Shigena, just like Shield. (2014-2015)

## **National Science and Technology Major Project**

To find new solutions to reduce VOC from coatings and adhesives by inventing resins and emulsions based on Shina / Shivena / Shigena. (2017-2021)

## **Supplying low VOC solutions in coatings and adhesives**

It is the time that we should do our best to help our country and our

## **Shield's Missions:**

Removing smog to regain green hills and clear waters!

## **Shield's Visions:**

To be the leading supplier of the low VOC solutions in the field of coating, bonding and adhesion, and dedicated to reducing VOC in the products of our customers!

## **Shield's Values:**

To be sincere, strive for excellence and infinite creation!

## **Shield's Products:**

### **Shina-10**

Neodecanoic Acid :  
60,000 metric tons/year

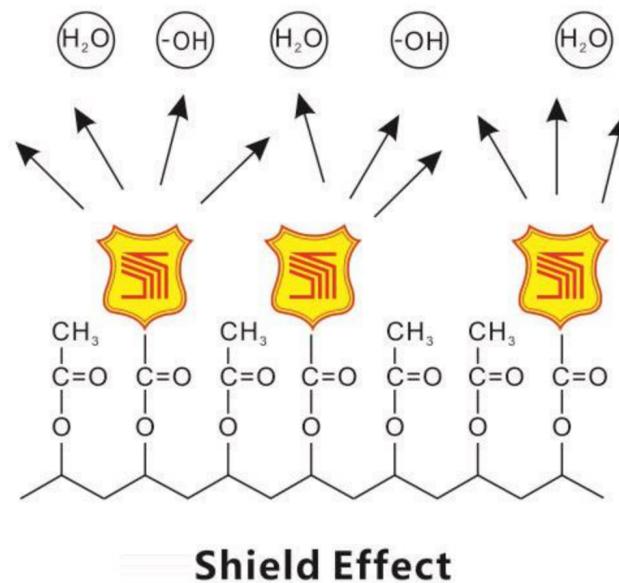
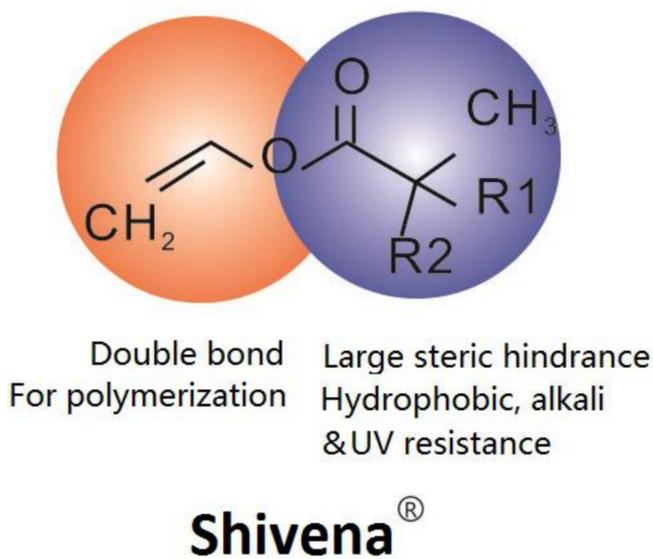
### **Shivena-10**

Vinyl Neodecanoate:  
60,000 metric tons/year

### **Shigena-10P**

Glycidyl Neodecanoate:  
10,000 metric tons/year

# Vinyl Neodecanoate and Applications



Homopolymer Tg	
ShiVena 5	+86°C
ShiVena 9	+70°C
ShiVena 10	-3°C
ShiVena 11	-40°C

## Shivena<sup>®</sup> -10

Vinyl Neodecanoate

**shivena=shield-vinyl-ester of  
neo-carboxylic- acid**

CAS No. : 51000-52-3

Shivena-10 is a vinyl esters of shina-10, and its structural formula is as shown above, among which R1 and R2 are alkyl groups with 8 carbon atoms . It is one of the vinyl esters of tertiary carboxylic acid.

**Shivena** is easy to carry out binary or ternary copolymerization with other monomers such as ethylene, vinyl acetate, acrylic ester and vinyl fluoride, and imparts excellent performance to the copolymer. It has a highly branched aliphatic structure and has a strong three-dimensional protection for its own and adjacent monomers in the copolymer, which will make the copolymer water resistant, alkali resistant and ultraviolet radiation resistant. In addition, its highly branched side chains also provide a very strong internal plasticity for the copolymer, which shows very good wettability and excellent leveling for paint and pigment when applied to coatings; it can be used to adjust the glass transition temperature of the polymers and form the coating surface which is tough and hard; it has low volatility and is suitable for preparing the polymer emulsion with low VOC, which is a kind of environment-friendly polymer.

## The Application of Shivena :

- Latices for decorative emulsion paints, plasters and renders.
- Spray-dried redispersible powders for decorative plasters and renders.
- Latices and spray-dried redispersible powders for mortar admixtures.
- Latices for adhesives including Pressure Sensitive Adhesives, construction and wood adhesives.
- Latices for industrial paints and coatings.
- Thermoplastic and thermoset solution polymers for various applications, including automotive paints, industrial coatings and cosmetics.
- Various specialty applications such as fuel additives.
- Aqueous dispersions for industrial applications.
- Reactive diluent for specific heat-cured unsaturated polyesters initiated by peroxide or using UV or EB radiation.

# Sales Specification and Typical Properties

## Sales Specification

Properties	Test method	Unit	Value
Colour	ASTM D1209	Pt-Co	≤ 15
Density at 20°C	ASTM D4052	g/ml	0.875-0.885
Refractive index, nD25	ASTM D1218	--	1.432-1.437
Water	ASTM E203	%m/m	≤ 0.1
Acid value as KOH	ASTM D1639	mgKOH	≤ 1.0
Vinyl unsaturation	SYTM 05	Mol/kg	4.85-5.10

## Typical Properties

Properties	Test method	Unit	Value
Molecular formula (theoretical) --	--	--	C <sub>12</sub> H <sub>22</sub> O <sub>2</sub>
Added inhibitor (hydroquinone monomethyl ether)	SYTM 07	mg/kg	5+/-2
Kinematic viscosity at 20°C	ASTM D445	mm <sup>2</sup> /s	2.2
Specific heat at 20°C	--	kJ/kg °C	1.97
Latent heat of vaporisation, 20°C	--	kJ/mol	48.9
Boiling range	ASTM D1160	°C	133-136
Flash point (PMCC)	ASTM D93	°C	75
Solidification point	ASTM D97	°C	< -60
Solubility in water at 20-80°C	--	%m/m	<0.1
Solubility of water in monomer at 20-80°C	--	%m/m	0.05
Specific heat of polymerisation	--	kJ/mol	96
Miscibility with vinyl acetate	--	--	completely miscible
Glass transition temperature of homopolymer (vinyl acetate T <sub>g</sub> =32°C )	--	°C	-3

## Packaging, transport, storage and handling precautions

Shivena- 10 is packed in 200 litre drums and IBC; bulk deliveries are in road tankers.

Information on the safe handling of Shivena- 10 is given in the product Safety Data Sheet and the precautions advised therein should be strictly observed.



Shield 四友

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