

Camdate PLE

Synonyms

Acetylacetone
Diacetylmethane
2,4-Pentanedione
CAS No: 123-54-6

Description

Catalyst Modifier

Use

Camdate PLE can be used to extend the pot life of reactive polymer systems whose cure or crosslinking has been affected by catalysis with metal ions. PLE has been used in the following Polymer Systems:
Polyurethanes & Acrylic Urethanes
Room Temperature Curing Polyesters

Physical & Chemical Properties

EINECS No: 204-634-0
Density (@ 20°C): 0.975 DIN 51757
Form: Liquid
Colour: Colourless
Odour: Mild-ketone like
Flash Point: 40°C DIN 51584

Camdate PLE reacts with the metal (catalyst) rendering it unavailable by reducing its catalytic effect. The Camdate PLE evaporates during the drying process, releasing the metal catalyst and enabling it to complete its catalytic reaction.

Safety

See Camida MSDS

Quality

See Camida Product Data Sheet CAM12065

Packing

200kg Net Drum
Other packing options may be available upon request.

Application/Formulation

Polyurethanes & Acrylic Urethanes

Camdate PLE extends the pot-life and enables the use of higher levels of catalyst, without significantly increasing cure time or affecting complete cure.

It is of particular interest in the pot life extension of high solids acrylic urethane isocyanate systems, which are commonly catalysed with organo-tin compounds such as dibutyl tin dilaurate. It reacts with organo-tin compounds to form organotin acetoacetates. Low levels of PLE can enhance the reactivity of catalysts in urethane formulations.

This process can be illustrated by a simple exercise of measuring the viscosity increase of a standard 2-pack acrylic isocyanate system with varying quantities of Camdate PLE in the thinner.

A generalised formulation is shown in Table 1:

Table 1

| <u>Start Point Formula For A 2 Pack Clear Coat</u> | |
|----------------------------------------------------|--------|
| <u>Base</u> | |
| Acrylic Polyol (70% Solids) (4.5% OH) | 144.00 |
| PMA | 16.70 |
| MIBK | 1.90 |
| Butyl Acetate | 32.50 |
| Byk 306 | 0.20 |
| Byk 358 | 0.60 |
| Tinuvin 1130 | 1.00 |
| Tinuvin 292 | 0.50 |
| Dibutyl Tin Dilaurate | 0.10 |
| Reactive Diluent | 9.50 |
| | <hr/> |
| | 207.00 |
| | |
| <u>Hardener</u> | |
| Camdate TI | 2.20 |
| Xylene | 12.70 |
| Aliphatic Isocyanate (100% Solids) | 92.00 |
| Camdate OF | 1.10 |
| | <hr/> |
| | 108.00 |
| | |
| <u>Thinner</u> | |
| PMA | 20.00 |
| Butyl Acetate | 16.00 |
| Butyl Glycol Acetate | 6.00 |
| Camdate PLE | 5.00 |
| | <hr/> |
| | 47.00 |

Mixing Ratio 207 Parts Base : 108 Parts Hardener : 47 Parts Thinner By **Weight**

Mixing ratio 2 : 1 : ½ By **Volume**

In this example, 0%, 5% and 10% of Camdate PLE were compared in the thinner over a period of just over 2 hours, with viscosities being measured at 15-minute intervals, and the viscosities being measured using a DIN 4 flow cup.

The results are shown in Table 2

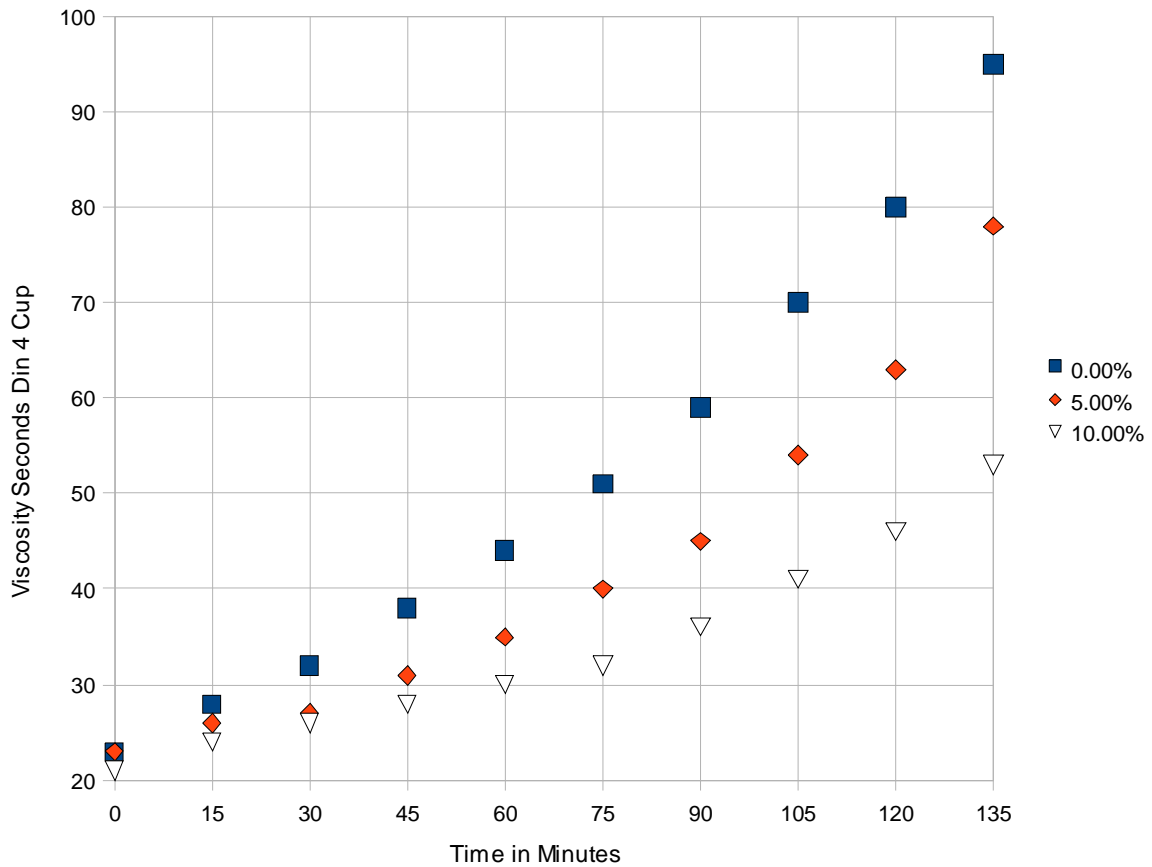
Table 2

| Time in minutes | Viscosity in Seconds Din 4 Cup with the following additions of Camdate PLE | | |
|-----------------|----------------------------------------------------------------------------|-------|--------|
| | 0.00% | 5.00% | 10.00% |
| 0 | 23 | 23 | 21 |
| 15 | 28 | 26 | 24 |
| 30 | 32 | 27 | 26 |
| 45 | 38 | 31 | 28 |
| 60 | 44 | 35 | 30 |
| 75 | 51 | 40 | 32 |
| 90 | 59 | 45 | 36 |
| 105 | 70 | 54 | 41 |
| 120 | 80 | 63 | 46 |
| 135 | 95 | 78 | 53 |

These results can be illustrated on a graph as shown in Graph 1

Graph 1

Graph of Viscosity with Time



Further Information

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