

Puma Polymers

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MASTER WORKS™ **Control Additives**

Introduction

To alter the application properties of the Master Works™ M1 series products, there are a range of Master Works™ Control Additives. These include: **Thixotrope**, **Retarder**, **Accelerator**. Potable water can be used as a diluent to thin M1

Thinning M1

Water can be used to thin M1 for the following purposes:

- To change the flow characteristics of M1 to wet out difficult to reach mould surfaces
- To reduce the product viscosity to facilitate product spraying and injection
- To increase filler loadings

Potable water is recommended for use as large amounts of impurities in some water sources may impact performance. Water can be added to the mixed product up to a maximum level of 2% of the total weight of Components A and B. Adding more than 2% by weight of water may adversely impact performance.

To achieve the desired flow characteristics, add small amounts of water to the Component A and B mix, stir thoroughly, and visually assess whether the desired flow characteristics have been achieved.

The table below indicates the viscosity reduction of the base Master Works™ M1 with different levels of water addition.

Water added	Viscosity of A + B	% reduction viscosity
None	80,000	1%
1%	62,000	23%
2%	50,00	37%

Experimentation has shown that provided the level of water used to dilute M1 is kept below 2% there will be no impact on the strength development of the product.

Thickening M1: Master Works™ Thixotrope

The Master Works™ Thixotrope can be used for the following purposes:

- To prevent sagging on vertical and overhead surfaces
- To modify the base products to make gelcoats

The thixotrope should be added up to a maximum level of 1% of total mix of Components A and B.

To achieve the desired thickening characteristics, add small amounts of thixotrope to the Component A and B mix, stir thoroughly, and visually assess whether the desired thickening characteristics have been achieved. Visual assessment should be made 30 seconds after addition before adding additional amounts of thixotrope.

DISCLAIMER OF LIABILITY

The information above is given in good faith as a guide for material use. However it remains at all times the responsibility of the customer to ensure that the material is fit for the particular purpose intended. The Master Works Trade Mark is the property of the Rohm and Haas Corporation.

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Retarding M1: Master Works™ Retarder

To manufacture large laminates or castings where product life needs to be extended, Master Works™ Retarder should be used.

It is, however, desirable for the product to set in the quickest possible time that the end product manufacturing allows as the retarder not only slows set but also the strength development.

The retarder must be added to Component A and thoroughly mixed for approximately 45 seconds. This is then initiated for set by mixing with Component B in the weight ratio 100 g A: 43 g B.

To extend set time, the following retarder addition guidelines are recommended:
If your as-received set time is:

Add the following amount of retarder to 1 kg of A to get this set time:

If your as received set time is:	Add the following amount of retarder to 1 kg of A to get this set time:		
	5 g	7.5 g	10 g
10 minutes	20 minutes	30 minutes	40 minutes
15 minutes	30 minutes	45 minutes	>60 minutes
20 minutes	40 minutes	>60 minutes	>60 minutes

* Small errors in retarder addition can have a significant impact on set time.

Accelerating M1: Master Works™ Accelerator

The accelerator can be used to speed the set time for the following purposes:

- To counteract the retardation effect of some fillers
- To increase productivity

To accelerate the set time of M1, the accelerator is added to Component B and initiated for set by mixing with component A in the weight ratio of 100 g A: 43 g B. The following are the addition guidelines for accelerator:

If your as received set time is:	Add the following amount of retarder to 1 kg of A to get this set time:		
	5 g	10 g	20 g
10 minutes	8 minutes	6 minutes	5 minutes
15 minutes	9 minutes	7 minutes	5 minutes
20 minutes	10 minutes	8 minutes	5 minutes

* Important Note on Master Works™ Accelerator and Retarder:

When adjusting set time with the Control Additives, the Master Works™ Retarder should only be added to Component A before combining the components – never to Component B.

By contrast, the Master Works™ Accelerator should only be added to Component B before mixing – never to Component A.

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