



Acrylic Processing Aid

PVC Foam Regulator : AIP 9000

Version: 02

Revision date: 1st July, 2019

Part 1: Introduction

AIP 9000 is a kind of acrylic processing aid which with super higher molecular and melt strength. It can promote fusion and melt strength of PVC compound and endow PVC foaming products with more uniform cell structure and more lower density. It mainly used in thick foaming board with thickness $>15\text{mm}$.

Part 2: Advantages

- Promotes gelation of PVC, improves hot-melt strength and visco-elasticity,
- stabilizes the micro-cells generated by blowing agent to achieve the low density and high strength of the foam.
- Outstanding melt strength enhancement
- Excellent surface gloss
- Uniform cell structure

Part 3: Application

AIP 9000 is widely used in foaming PVC profile, pipe, board (thickness $>7\text{mm}$) etc.

Part 4: Composition

Technical specification

Specification	Unit	Test standard	AIP 9000
Appearance	--	--	White powder
Bulk density	g/cm ³	GB/T 1636-2008	0.45±0.10
Sieve residue (30 mesh)	%	GB/T 2916	≤2.0
Volatile content	%	ASTM D5668	≤1.50

Intrinsic viscosity (η)	--	GB/T 16321.1- 2008	11.5-15.5
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Part 5: Performance Comparison

5.1 Basic formulation for the following tests

Mixing equipment type: SHR-5A from Zhang Jiagang Beier Machinery Co., LTD

Volume: 5L

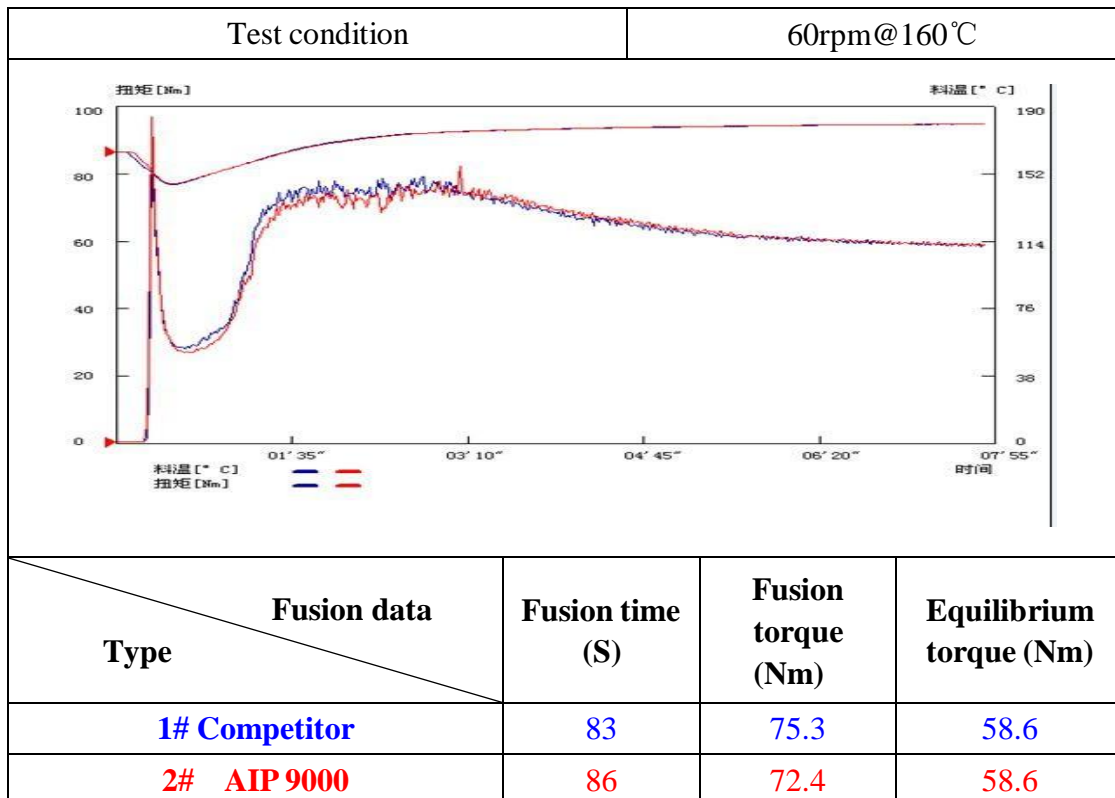
Mixing condition: 120°C

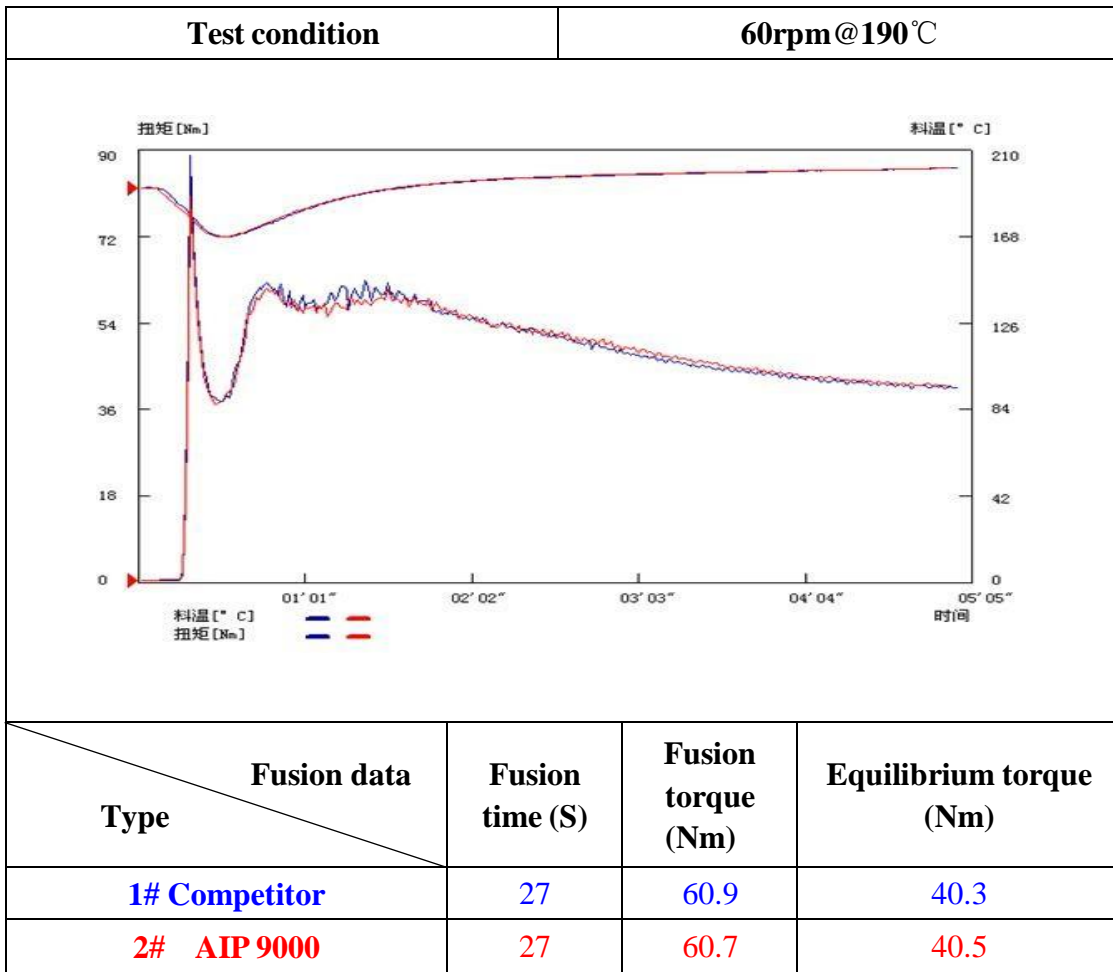
Ingredients	1# Competitor	2# AIP 9000
PVC (K-57)	100.0	100.0
Lead stabilizer	4.4	4.4
316A	0.54	0.54
PE wax	0.8	0.8
G-60	0.9	0.9
CaCO ₃ (PCC)	50.0	50.0
Blowing agent PF-K	0.3	0.3
Blowing agent WF-108	1.0	1.0
Competitor	10.0	-
AIP 9000	-	10.0

5.2 Fusion property comparison

Test equipment type: RM-200C torque rheometer from Harbin Hapro Electrical technology co., LTD

Volume: 60ml





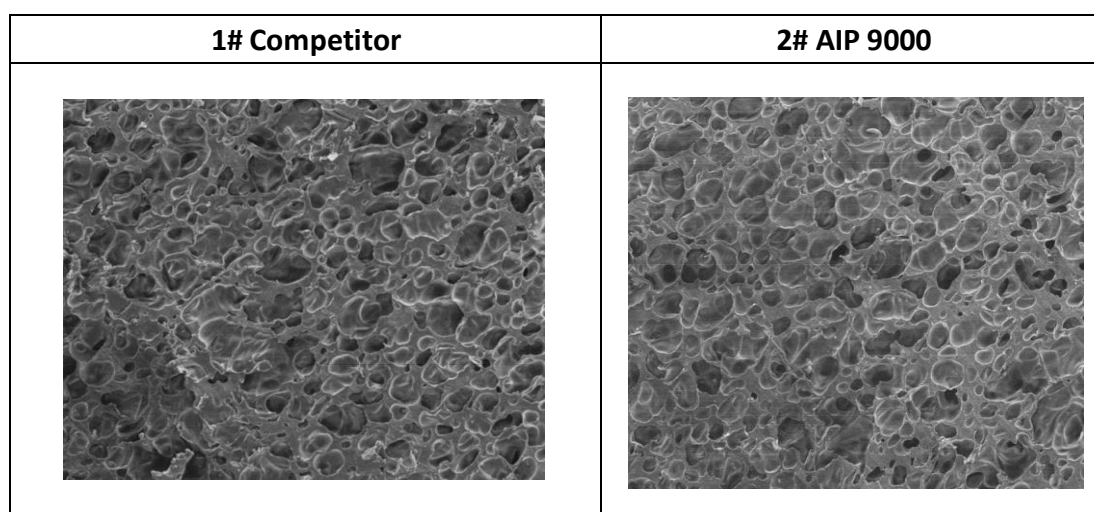
5.3 Expansion properties comparison

Type	Foamed die swell ratio (%)	Density of extrusion bar with blowing agent (g/cm ³)
1# Competitor	140.2±1.8	0.8509±0.03
2#AIP 9000	155.1±1.0	0.7565±0.01

Remarks:

$$\text{Foamed die swell ratio} = \frac{\text{Diameter of extrusion bar}}{\text{Die diameter of extrusion}} \times 100\%$$

5.4 Foam cell structure (SEM)



5.5 Surface quality of foamed board

Type	Gloss(45°C)	Hardness	Density (g/cm ³)
Test standard	ASTM D2457	GB/T 2411	GB/T 6343
1# Competitor	12.0±0.18	65.4±0.3	0.57±0.02
2# AIP 9000	13.2±0.10	65.5±0.2	0.50±0.01

Part 6: Packing, transportation and storage

20kg/25 kg bag, 250kg/500 kg super sack

This material is non-dangerous goods for land, air and marine transportation.

Material should be kept from flames, hot pipes, heaters or other sources of heat. Adequate precautions should be taken to keep all dust levels below values that are hazardous to health and safety. The recommended maximum storage temperature for this material is 45 °C.

Part 7: Safe Handling

Please consult the MSDS before handling for additional information concerning personal protective equipment, Safety, Health and Environmental information, and always exercise the utmost care in handling

