

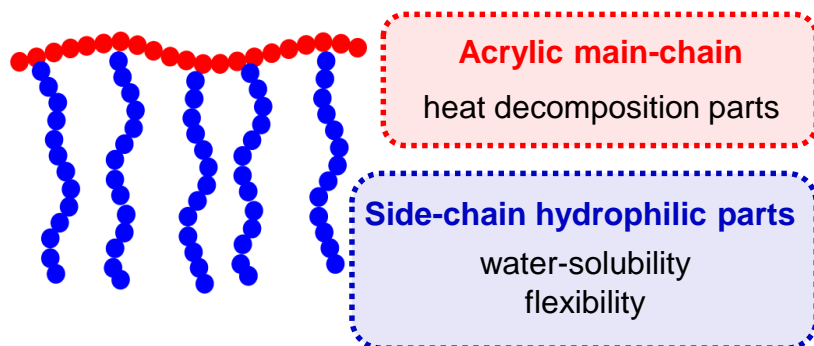
MARPROOF™ HP-X5

Water-soluble acrylic polymer

Features

- Water-soluble side chain-containing graft polymer
- Good heat decomposition during calcination
- Prevention effect of molding failure

Structure image



Basic physical properties

Items	Properties
Appearance	Slightly yellow liquid
Molecular weight (Mw)	Ca. 70,000
Solid content (%)	Ca. 40 (aqueous solution)

Performance

1. Thermal decomposition property

Method

TG (Thermogravimetric analysis)
Measure residue after calcination

<Condition>

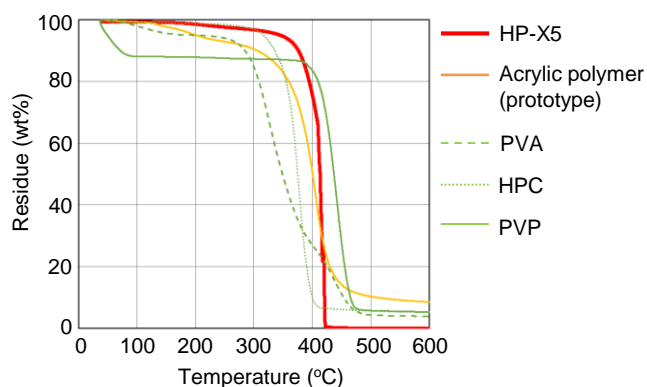
- ① Rising temperature 30°C→600°C, 10°C/min (N₂)
- ② Isothermal-holding 400°C × 120min (N₂)

Result

Residue (wt%)

Polymer	①	②
MARPROOF™ HP-X5	0.1	0.3
Acryl polymer (prototype) *	1.6	7.8
PVA *	3.9	5.2
HPC *	5.1	4.3
PVP *	5.2	11.1

※ Acryl polymer・・・Including carboxyl group (prototype)
PVA・・・Polyvinyl alcohol (Poval™ PVA-224E, KURARAY)
HPC・・・Hydroxypropyl cellulose (150~400mPa·s/25°C 2%aq, TCI)
PVP・・・Polyvinylpyrrolidone (PVP K-90, TCI)



Heat decomposition chart on ①

MARPROOF™ shows excellent thermal decomposition performance.

2. Formability performance

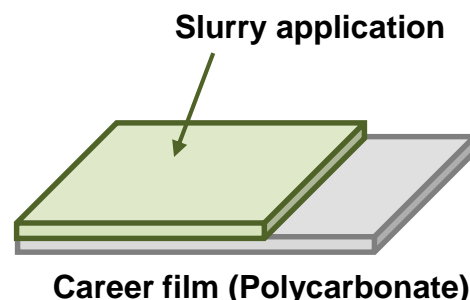
Method

- Prepare slurry composition*¹ with binder.
- Form ceramic sheet by slurry application.
- Observe surface condition of the sheet after drying (12 hour under R.T.).



Composition*¹

Ingredients		ratio (by weight)
Base material	BaTiO ₃ * ²	100
Dispersant	MALIALIM® SC-0505K	3
Binder polymer	Refer below table	10
Solvent	Ion exchanged water	100

*² BaTiO₃ ··BT-03, SAKAI CHEMICAL INDUSTRY Co., Ltd.



Result

Run		1	2
Binder ratio (wt%)	MARPROOF™ HP-X5	0	50
	Polyvinylpyrrolidone	100	50
Appearance (visual)		 Cracking	 Flat and smooth

* Film thickness on drying : Ca. 500 μm

MARPROOF™ inhibits cracking and prevents molding failure.

Regulatory Status

CAS No.	CSSL (Japan)	ECN (Taiwan)	IECSC (China)	ECL (Korea)	TSCA (USA)
Registered	On List	Not on List	Not on List	Not on List	Not on List

We can customize products upon your request. Please feel free to contact us.

MALIALIM is a trademark of NOF CORPORATION.


NOF CORPORATION

Head Office

Yebisu Garden Place Tower, 20-3 Ebisu 4-chome, Shibuya-ku, Tokyo 150-6019, Japan
 TEL. +81-3-5424-6704 FAX. +81-3-5424-6810
<http://www.nof.co.jp/english/index.html>