Resin Modifier

TAFMER™

Mitsui Chemicals

Innovative Polyolefin elastomers for HFFR compound

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Contents

1.HFFR CMPD Market Trend and Key Technical Issue

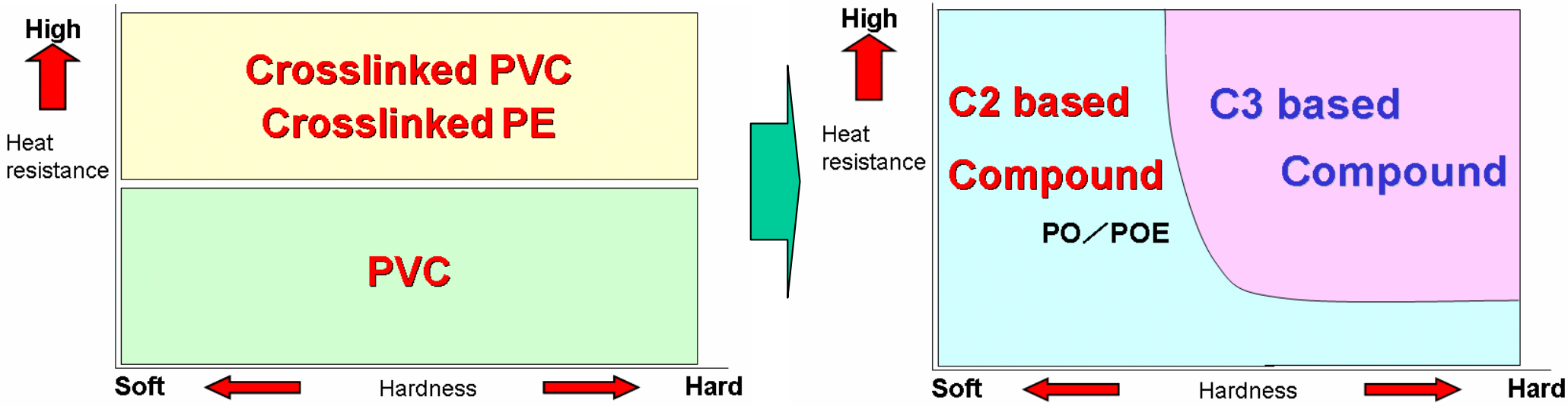
Market Trend

Market Trend for Flame retardant CMPD ⇨ **Halogen Free**

- PVC
- Halogen Flame retardant

⇨

- Polyolefin
- Halogen **Free** Flame retardant (HFFR)



Key Technical Issue

For Polyolefin HFFR CMPD

High Flame retardancy ⇨ High Filler Content

Due to much content of Metal hydride

- **Less Elongation**
- **Less Softness**
- **Less Anti-Scratch**
- **Less Anti-Abrasion**

2. TAFMER™ Concept as Solution Provider

TAFMER™ for HFFR CMPD

❖ ***TAFMER™ is***

Alpha-Olefin Copolymers and use as modifier (flamable).

❖ ***Primary Features***

- ***Low Crystallinity***
- ***Softness (Elastic)***
- ***Good miscibility with Polyolefin***

Solution

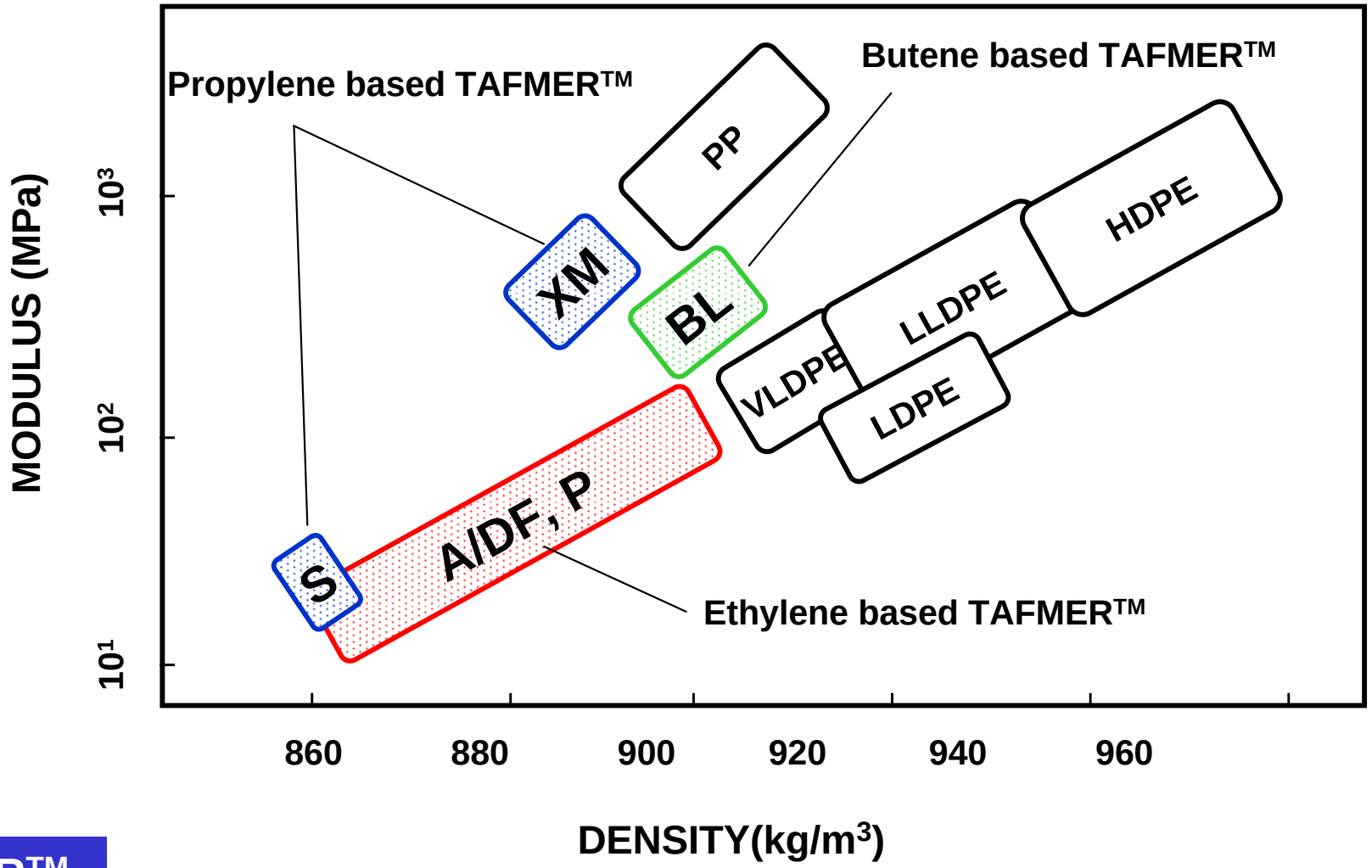
Key Performances to be demonstrated

Elongation | **Softness** | **Anti-Scratch** | **Anti-Abrasion**

3. TAFMER™ Product and its properties

What is TAFMER™?

TAFMER™: *Alpha-Olefin Copolymers*



TAFMER™ Suitable grades and Key Function

	Suitable Grades	Function
C2 base CMPD	A/DF-series M-series	Elongation Softness Anti-Scratch
C3 base CMPD	XM-series	Elongation Softness Anti-Abrasion

4. TAFMER™ Performance data of in HFFR CMPD System

4-1. C2 base HFFR CMPD

Basic formulation

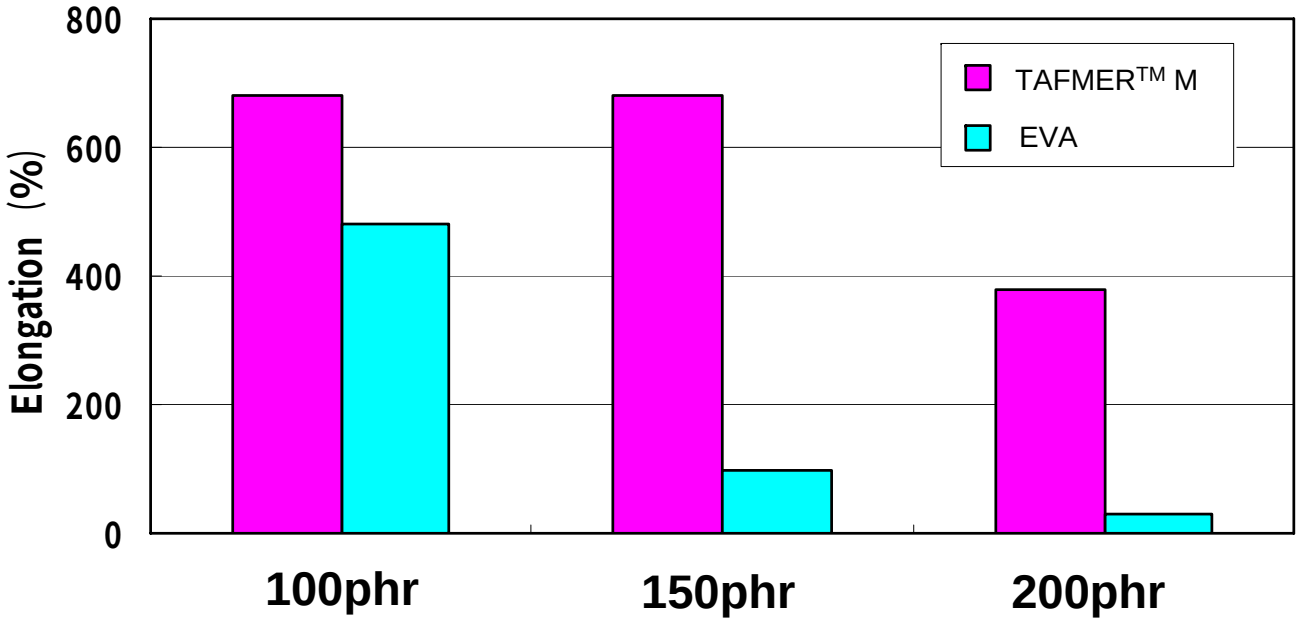
PE／EVA + **TAFMER™ A** + Metal hydride

+ Flame retardant co-agent + Additives

Elongation of TAFMER™ ／EVA

Formulation :
Base Resin ／ Metal hydride ＝ 100 (phr) ／ X (phr)

Better



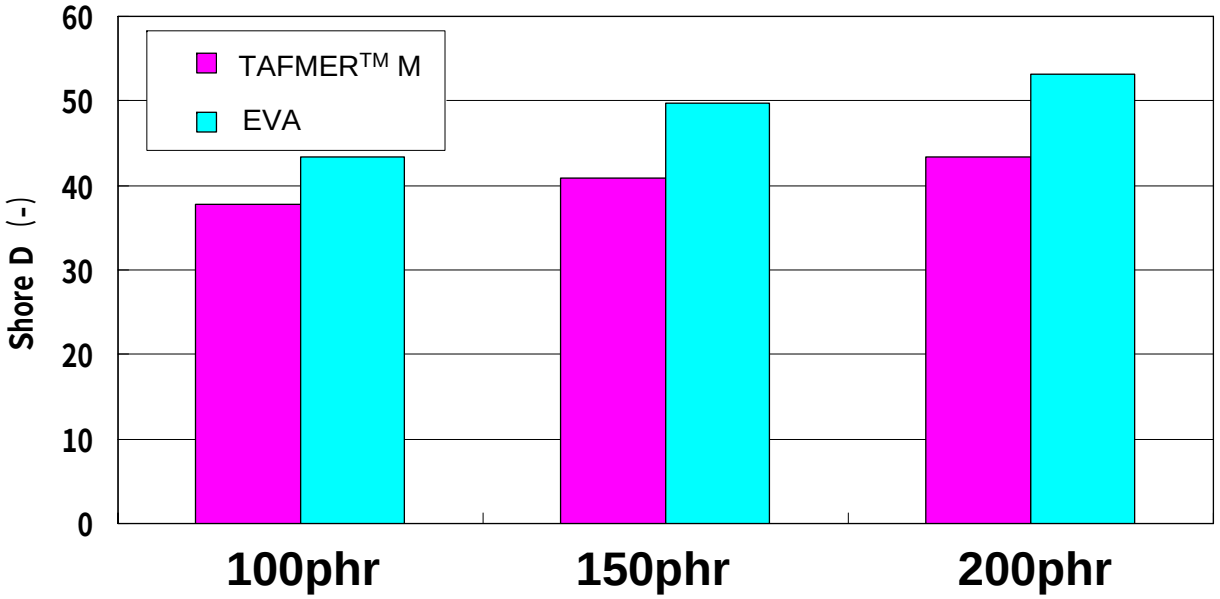
TAFMER™: Density:885kg/m³, Torsional rigidity:10MPa
EVA: VA content:25%, Torsional rigidity:10MPa
MDH:Surface treated with Silane

Elongation of TAFMER™ compounds are superior to that of EVA's.

Softness of TAFMER™ ／EVA

Formulation :
Base Resin ／ Metal hydride ＝ 100 (phr) ／ X (phr)

Softer

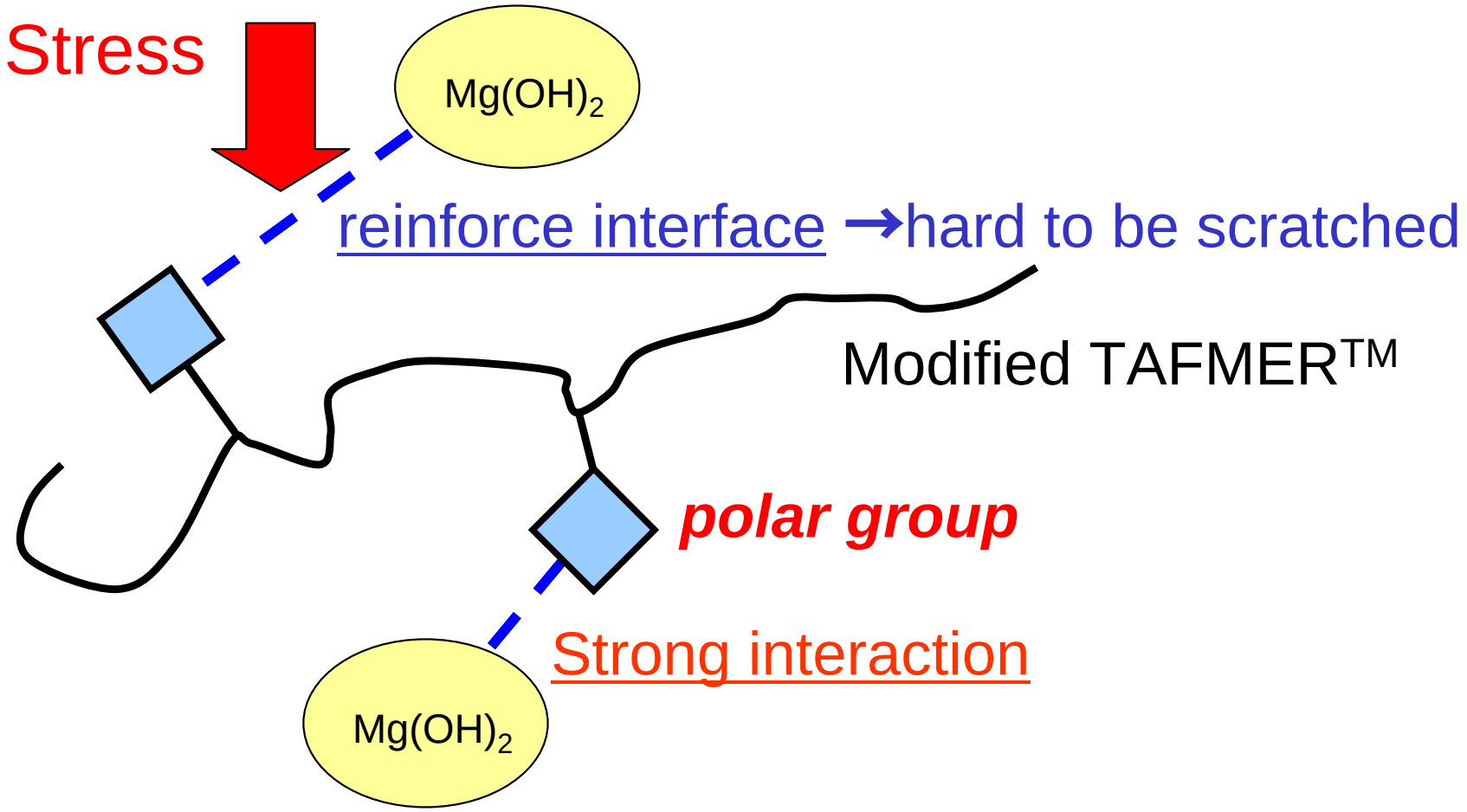


TAFMER™: Density:885kg/m³, Torsional rigidity:10MPa
EVA: VA content:25%, Torsional rigidity:10MPa
MDH:Surface treated with Silane

TAFMER™ compounds are softer than EVA's.

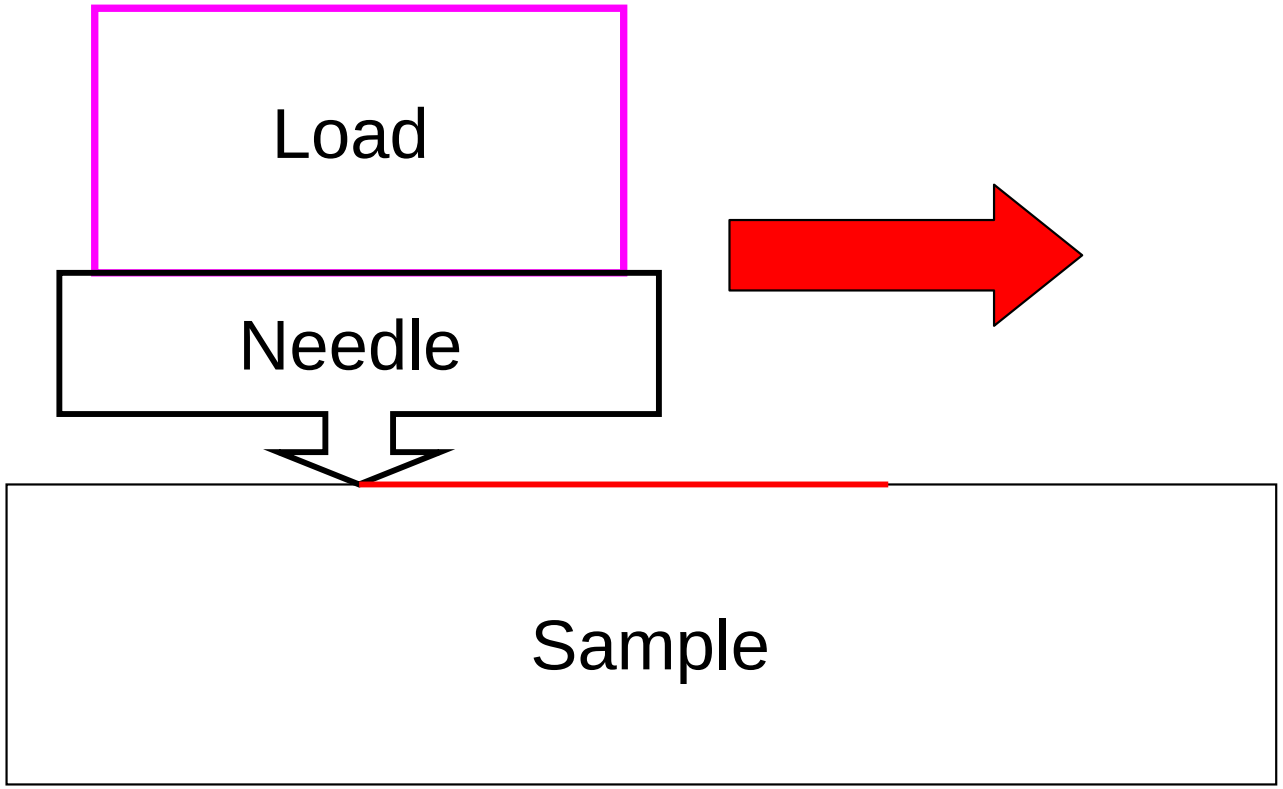
TAFMER™ M as Scratch improver

TAFMER™ M : polar group grafted TAFMER™



TAFMER™ M as Scratch improver

Martens Scratch Hardness

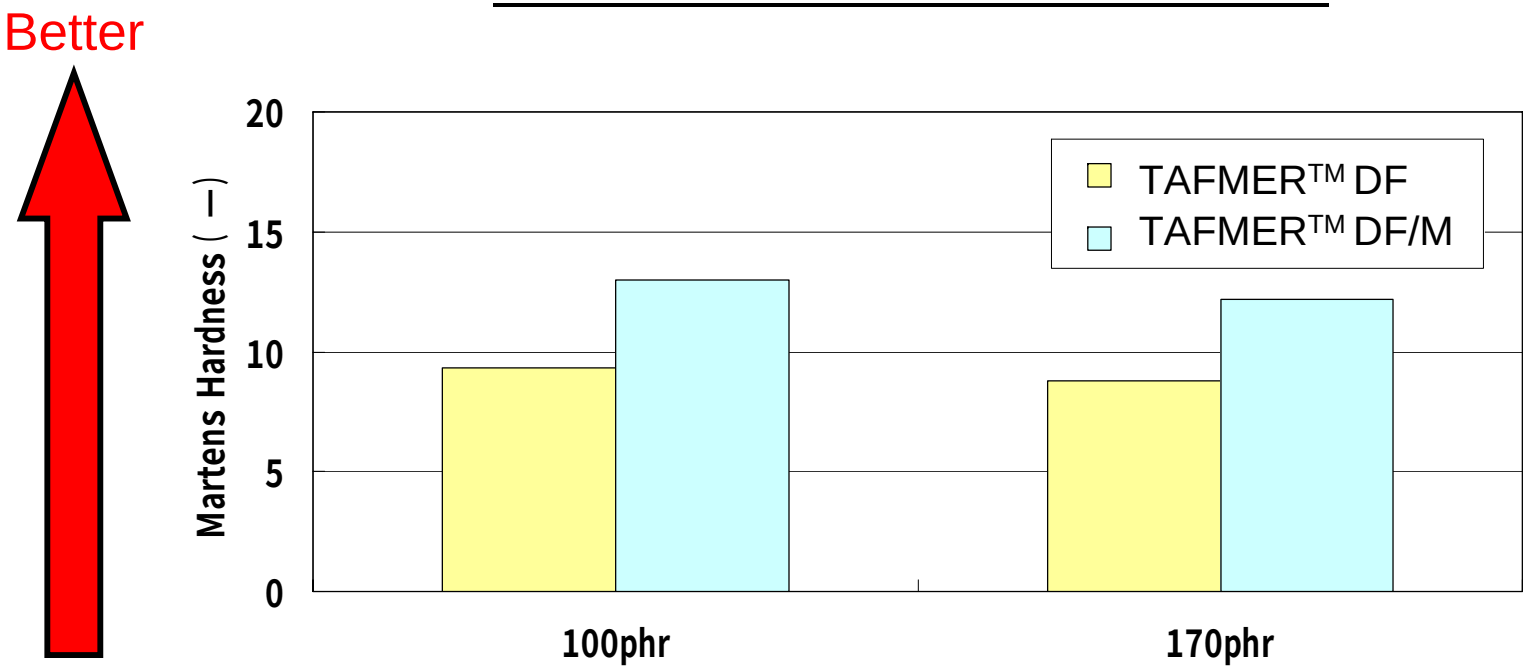


Index : Reciprocal of width of scar

(Bigger index means better.)

Scratch resistance of TAFMER™

Martens Scratch Hardness



TAFMER™ M improves Scratch resistance.

Summary for C2 base CMPD

C2 TAFMER™／TAFMER™ M offers excellent solutions；

- **Elongation**
- **Softness**
- **Anti-Scratch property**

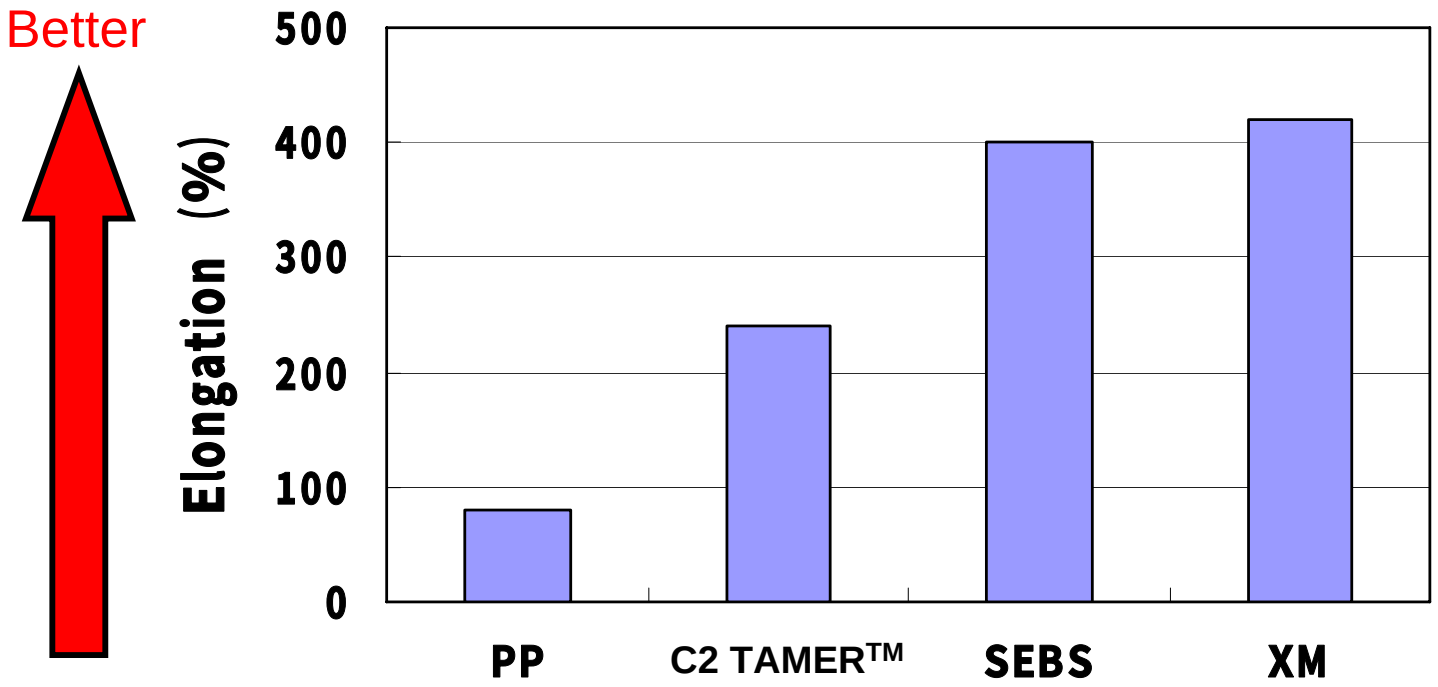
4-2. C3 base HFFR CMPD

Basic formulation

PP + **TAFMER™ XM**+ Metal hydride

+ Flame retardant co-agent + Additives

Elongation of TAFMER™ CMPD



Formulation:

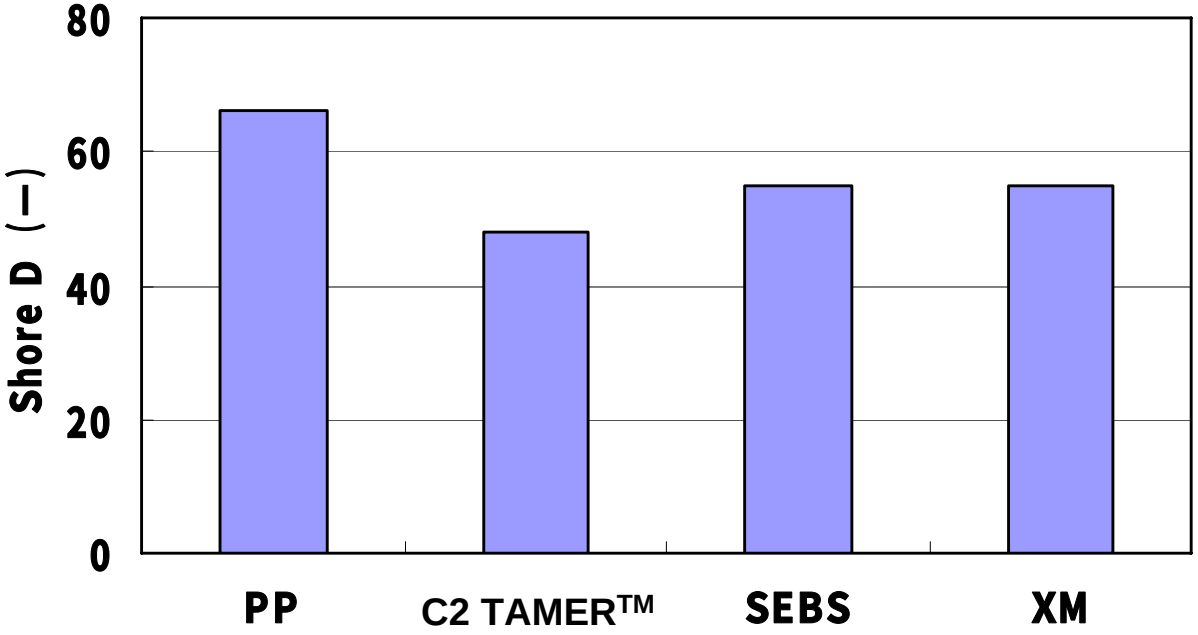
PP/Elastomer/MDH

=30 / 20 / 50 [wt%]

Elongation of TAFMER™ XM compound is superior to that of PP.

Softness of TAFMER™ CMPD

Softer



Formulation:

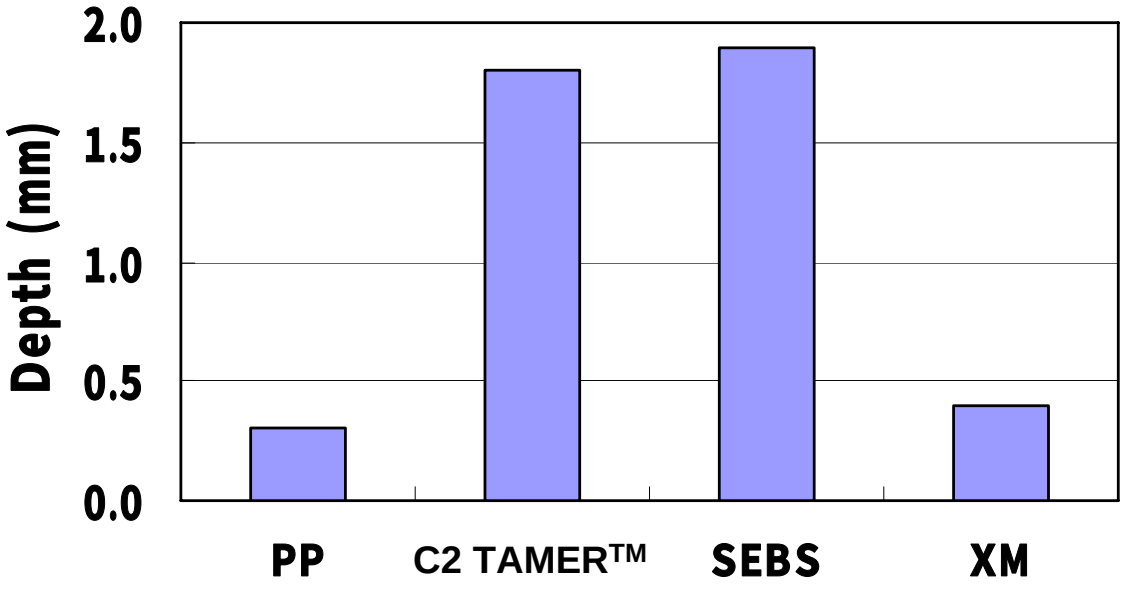
PP/Elastomer/MDH

=30 / 20 / 50 [wt%]

TAFMER™ XM compound is softer
than PP and other Elastomer compounds.

Anti-Abrasion property of TAFMER™ CMPD

Better



Formulation:

PP/Elastomer/MDH

=30 / 20 / 50 [wt%]

Scraping 500 cycles
by 7N load on 2mmΦ
column sample

Anti-abrasion property of XM is superior to POE or SEBS.

Miscibility of Modifier is Key for Anti-Abrasion Property

Photo of PP/SEBS

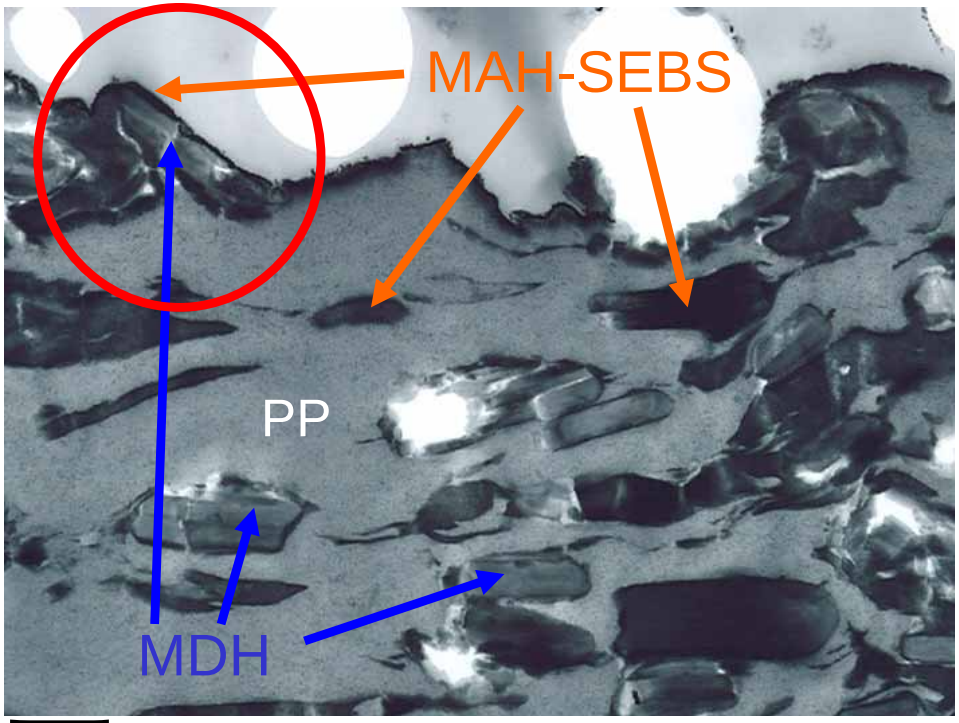
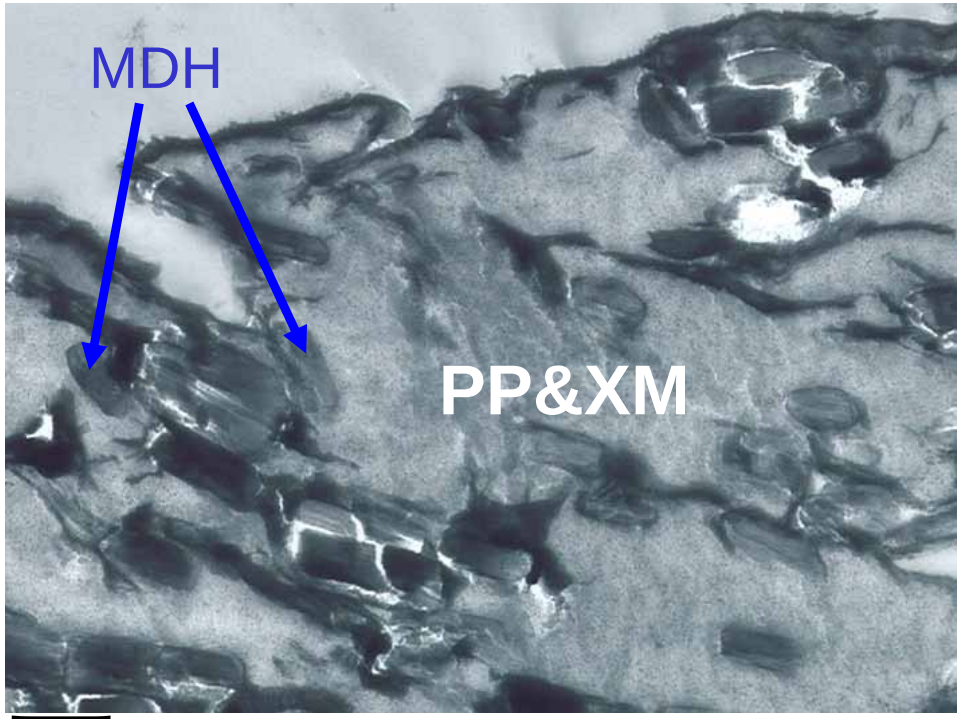


Photo of PP/XM



XM's miscibility is better.

Summary for C3 base CMPD

TAFMER™ XM offers excellent solutions;

- **Elongation**
- **Softness**
- **Anti-Abrasion property**

5. Summary

Summary

TAFMER™ offers excellent solutions for Polyolefin HFFR CMPD;

- **Elongation**
- **Softness**
- **Anti-Scratch property**
- **Anti-Abrasion property**

Contact

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