AFLAS® Fluoroelastomers

AGC Chemicals Americas, Inc.

AFLAS®
FLUOROELASTOMERS

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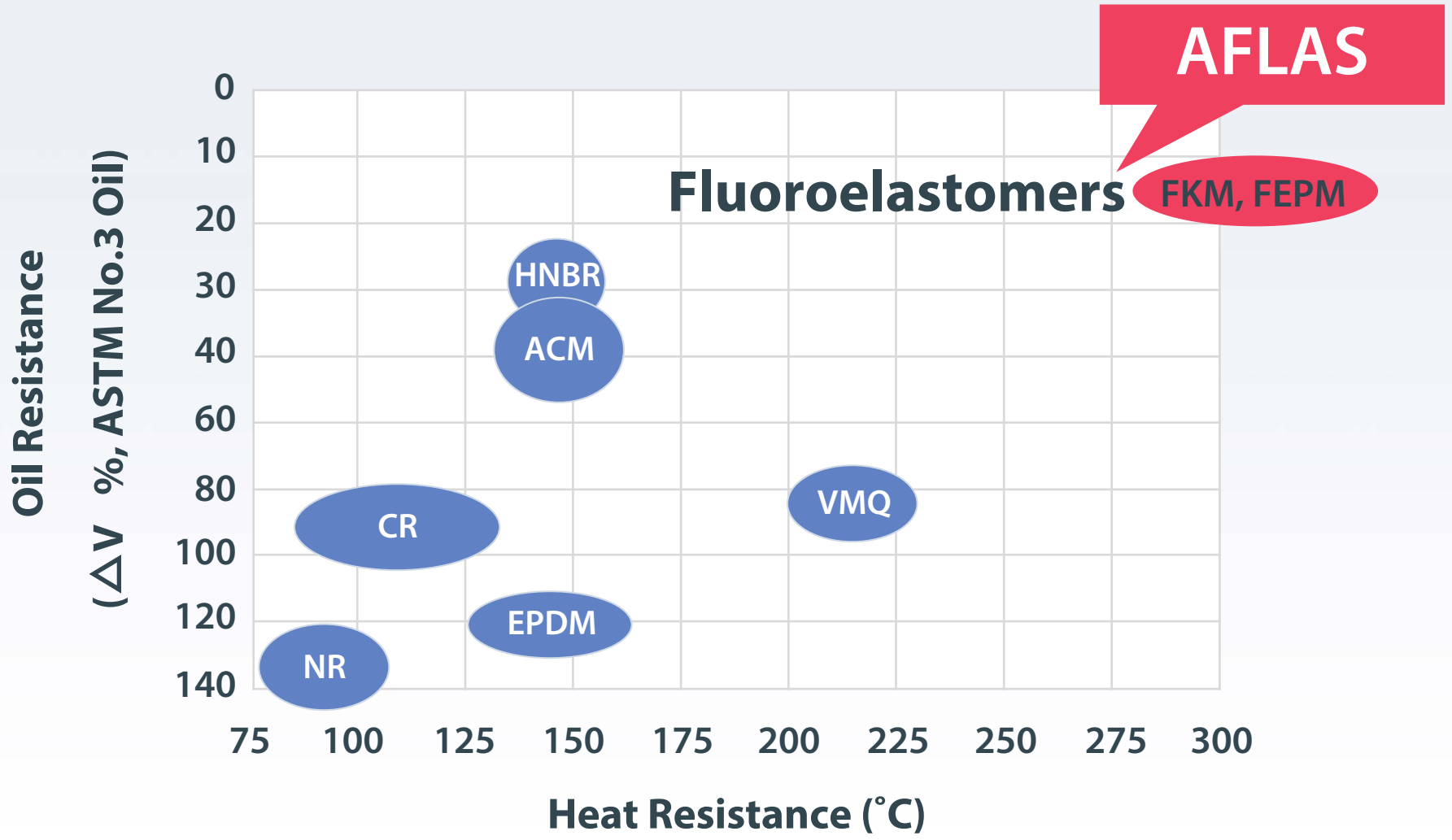
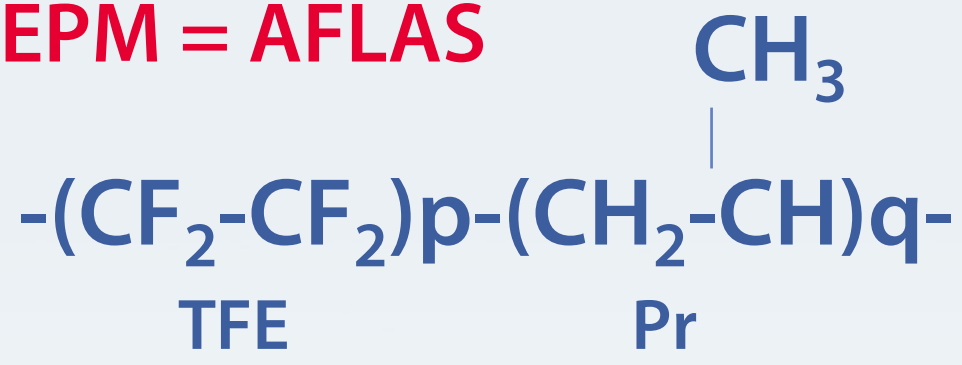
Positioning Map of Fluoroelastomers

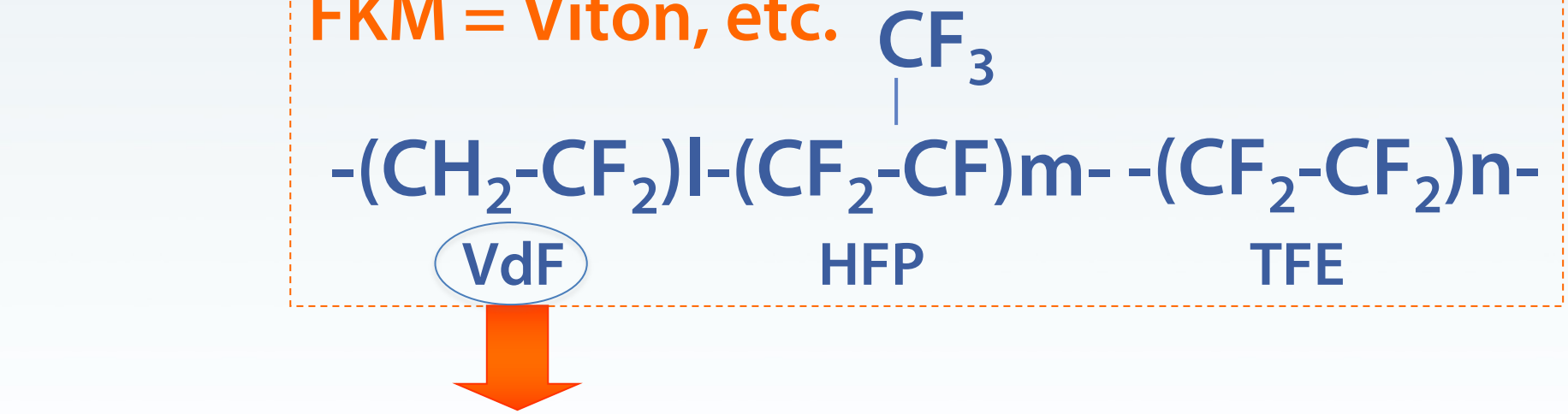


Polymer Structure

FEPM = AFLAS



FKM = Viton, etc.



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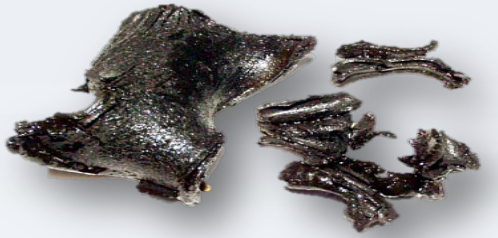
Characteristics of AFLAS: Base Resistance

Ethylene Diamine (70 h at 25 ˚C)

AFLAS
Peroxide cure

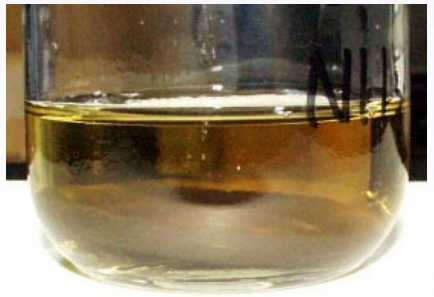
FKM terpolymer
Peroxide cure



FKM dipolymer
Bisphenol cure

28% Aq. Ammonia (168 h at 25 ˚C)

AFLAS
Peroxide cure



FKM terpolymer
Peroxide cure

FKM dipolymer
Bisphenol cure

Characteristics of AFLAS: Electrical Resistivity

	AFLAS				
	150	200	FKM	EPDM	Silicone
Volume Resistivity (Ω·cm)	10^{16}	10^{15}	10^{13}	10^{16}	10^{16}
Dielectric constant (1 kHz)	3	6	10	2	4
Dielectric strength (kV/mm)	23	16	20	40	25

AFLAS has both excellent electrical resistivity and heat resistance.

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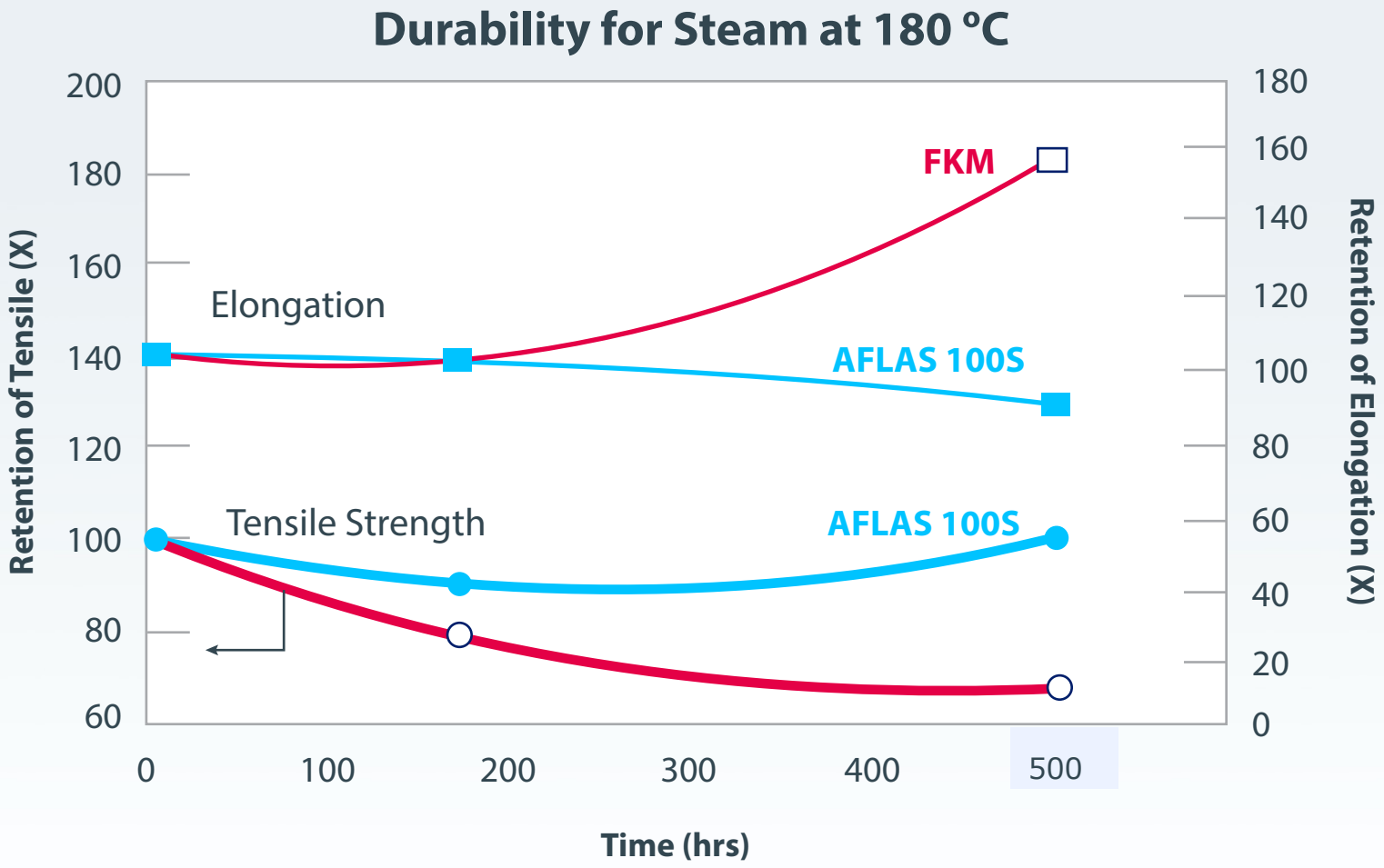
Characteristics of AFLAS: Steam Resistance



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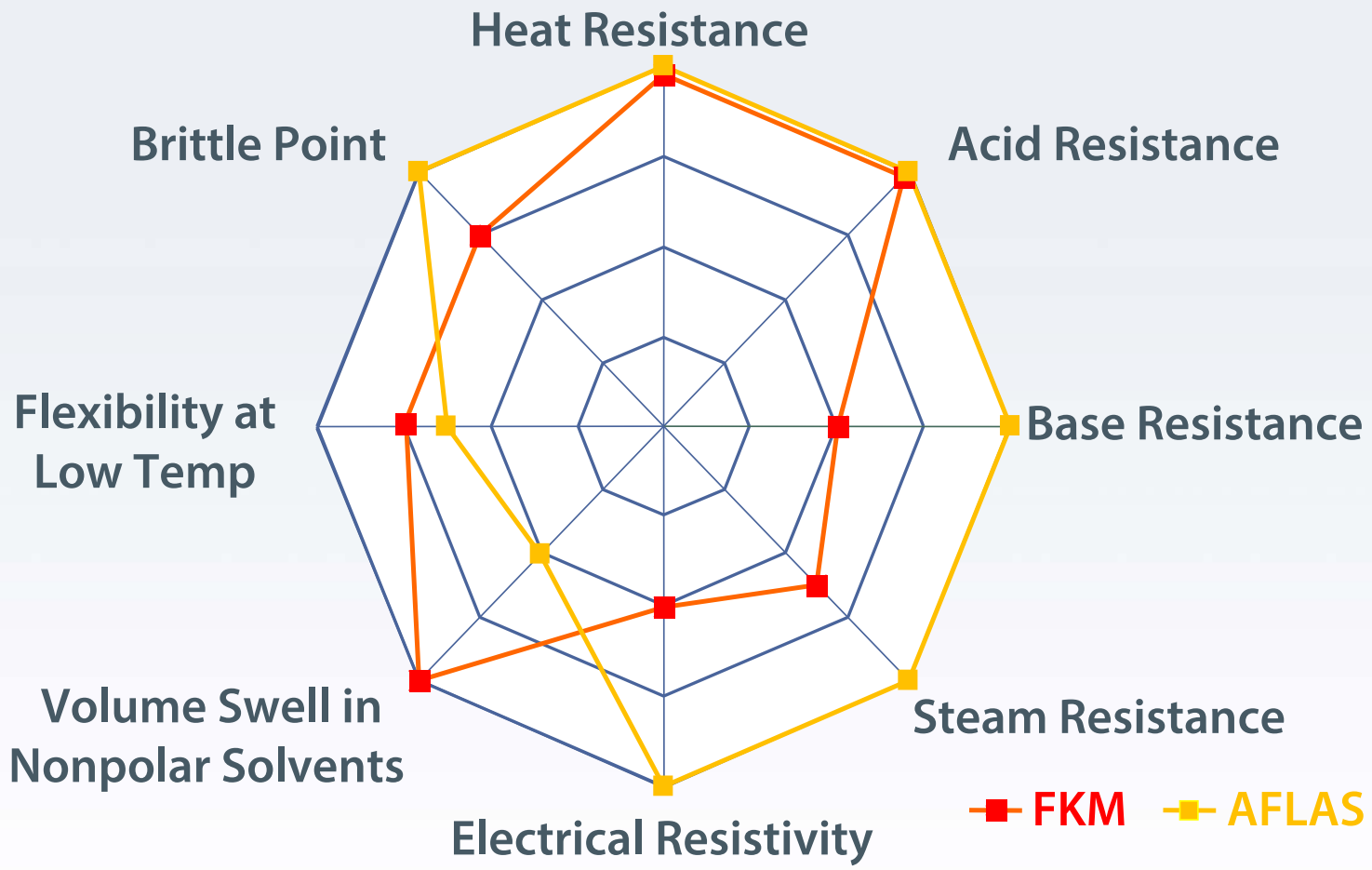
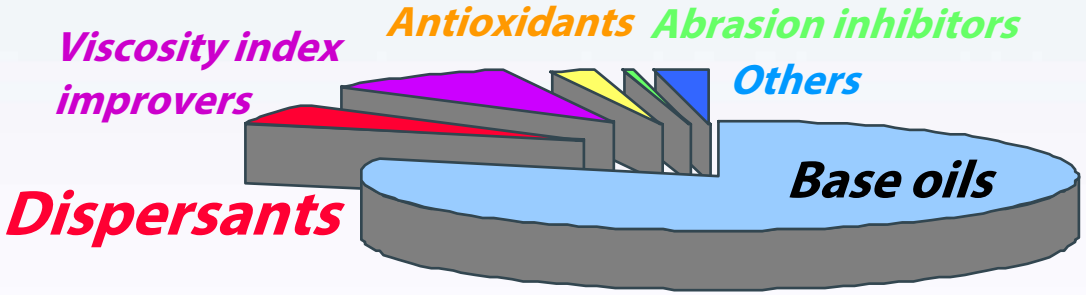
AFLAS versus FKM



AFLAS has various advantages over FKMs.

Example of AFLAS Molded Parts

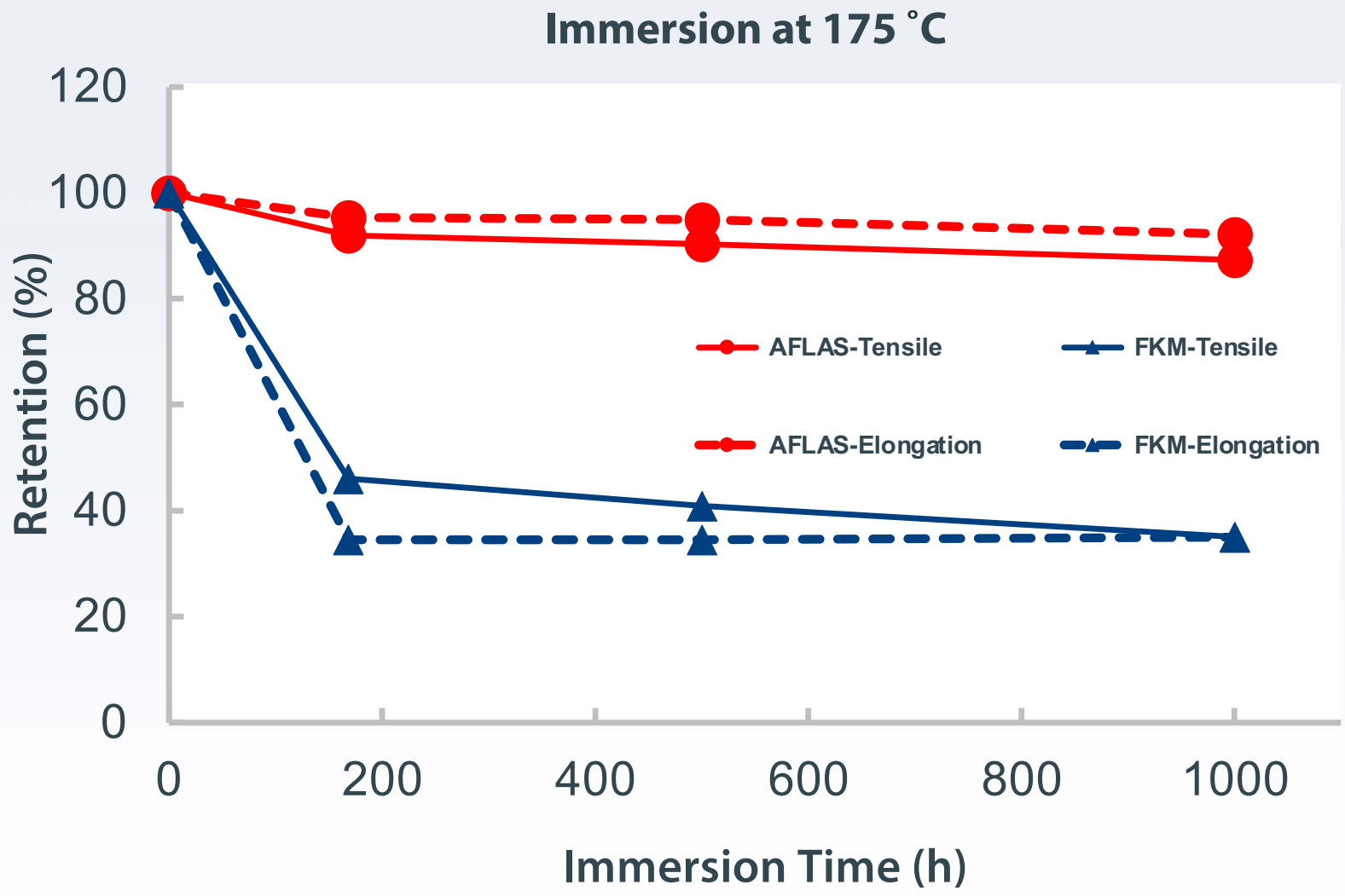


Automotive Oil Seals

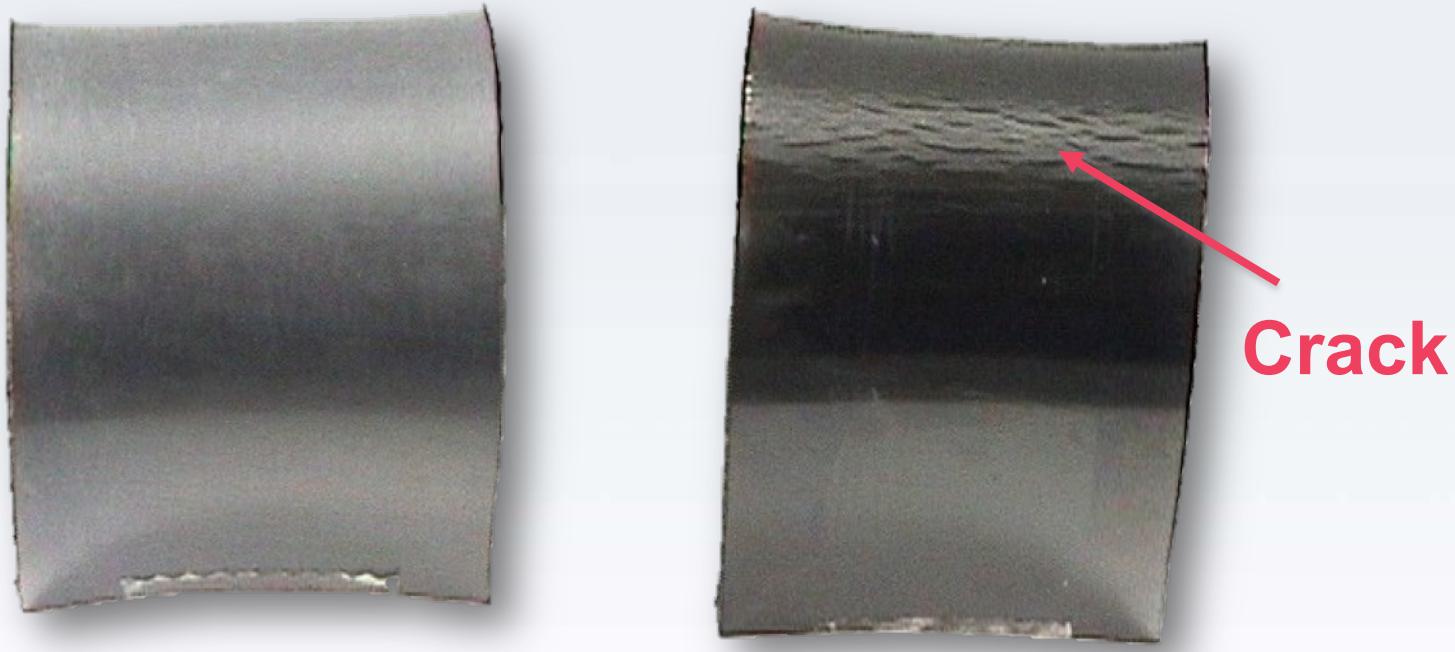
- Oil resistance
- Heat resistance
- Base resistance

Automotive lubricants contain many amine additives.

AFLAS versus FKM in SJ Engine Oil



AFLAS versus FKM in SJ Engine Oil



AFLAS FKM

Vulcanizates after immersion in SJ Engine Oil at 175 ˚C for 240 h

Example of AFLAS Molded Parts

- Wire & Cable
  - Heat resistance
  - Chemical resistance
  - Chemical resistivity
- Robots
- Express train, automotive
- Cable for furnace

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Example of AFLAS Molded Parts

Oil Rig Parts

- Oil resistance
- H_2S resistance
- High strength

AFLAS has long been used for oil field applications.

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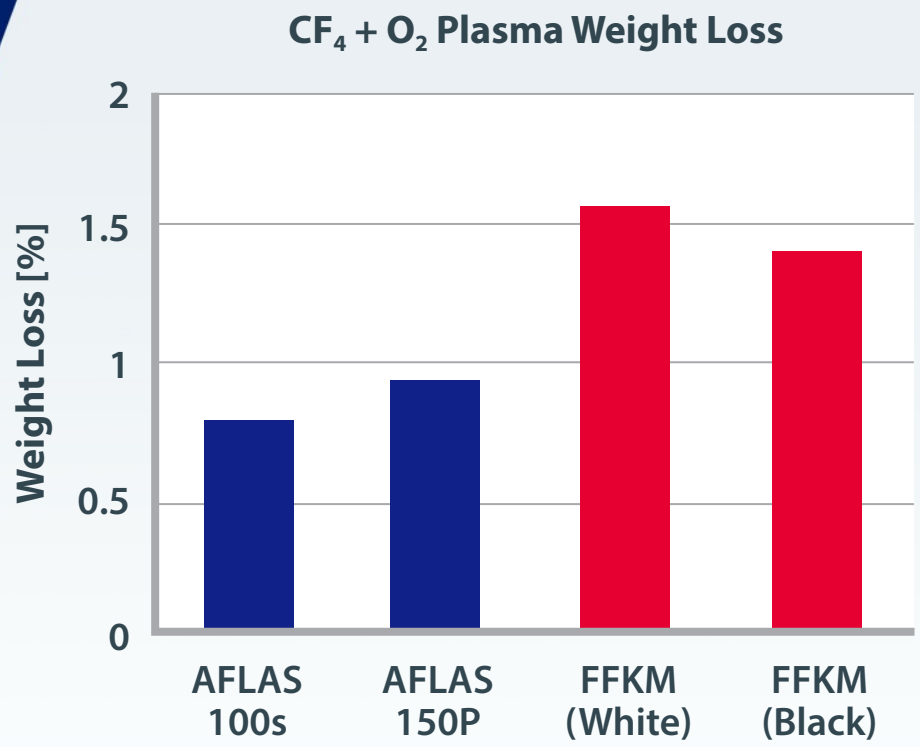
Example of AFLAS Molded Parts



LCD – Semiconductor Process

- Chemical resistance for these processes:
  - TMAH, NMP, NaOH, Aq. Ammonia, etc.
- Plasma resistance

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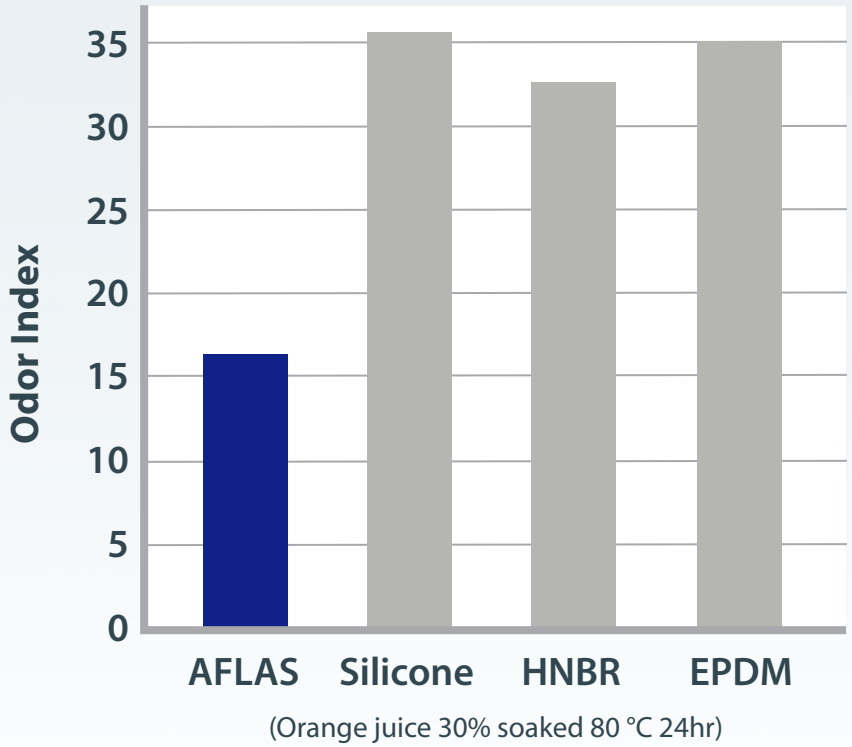
Example of AFLAS Molded Parts



(Orange juice 30% soaked 80 °C 24hr)

Food & Beverage Production Process

- Resistance to sterilization
- Steam, sodium hypochlorite (NaClO), peroxyacetic acid are typical
- Low odor after contact

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AFLAS Products

AFLAS® 150 Series – Standard Grade

Excellent chemical resistance and electrical insulation properties.
Suitable for extrusion and compression molding.

GRADE	APPLICATION	EXTERNAL CURE SYSTEM
150C	Extrusion – Wire and Cable	Electron Beam
150E	Extrusion – Thin Sheet	Peroxide
150L	Linings	Peroxide
150P	General Purpose	Peroxide

AFLAS® 100 Series – High Strength Grade

The high molecular weight of AFLAS® 100 series gives it its high mechanical strength.
The structure is identical to that of AFLAS 150 series.

GRADE	APPLICATION	EXTERNAL CURE SYSTEM
100H	General Purpose	Peroxide
100S	General Purpose	Peroxide

AFLAS® Latex Series – Liquid Grade

Aqueous dispersion of the AFLAS® polymer that is suitable for use as a binder or coatings material.

GRADE	APPLICATION	EXTERNAL CURE SYSTEM
150CS Latex	Coatings	None
300S Latex	Binder	Peroxide

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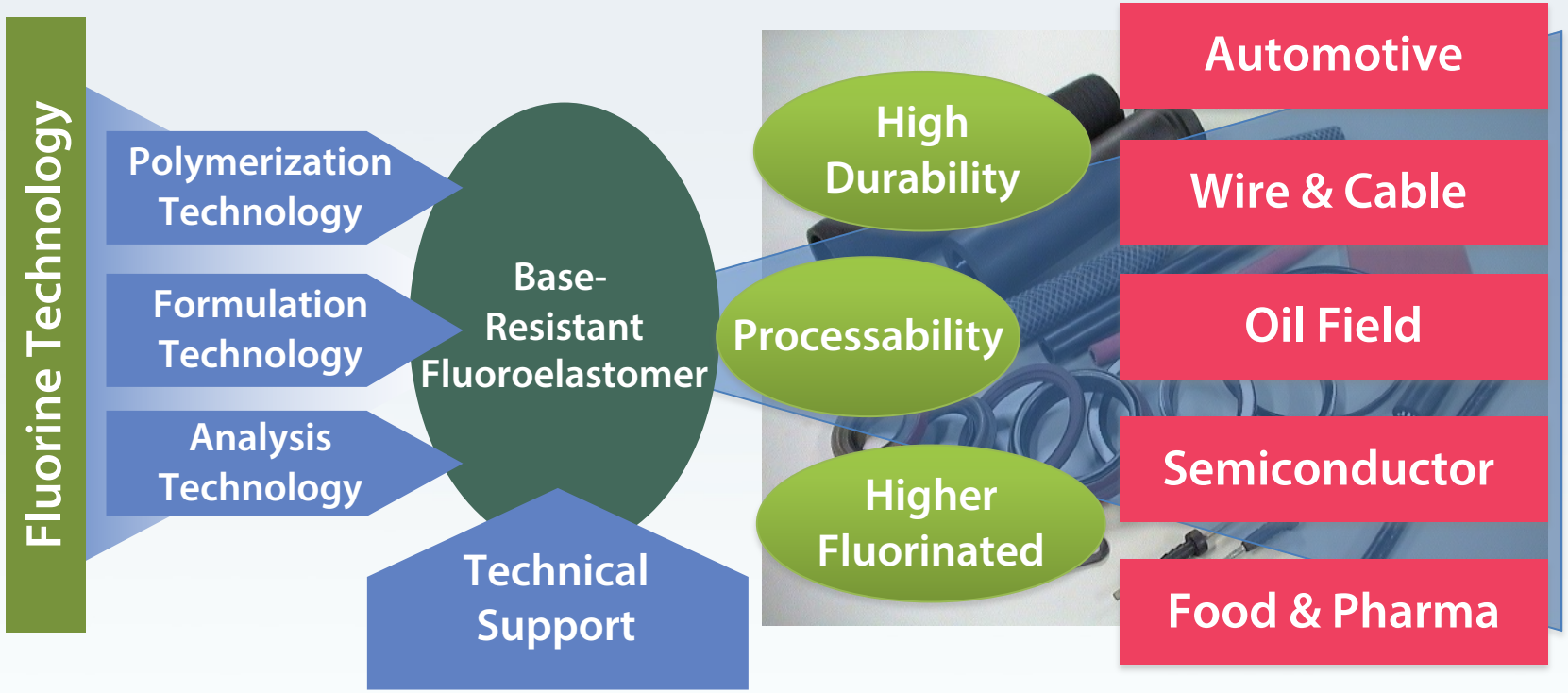
AFLAS R&D Strategy



Be the #1 supplier of fluoroelastomers with the highest base resistance.

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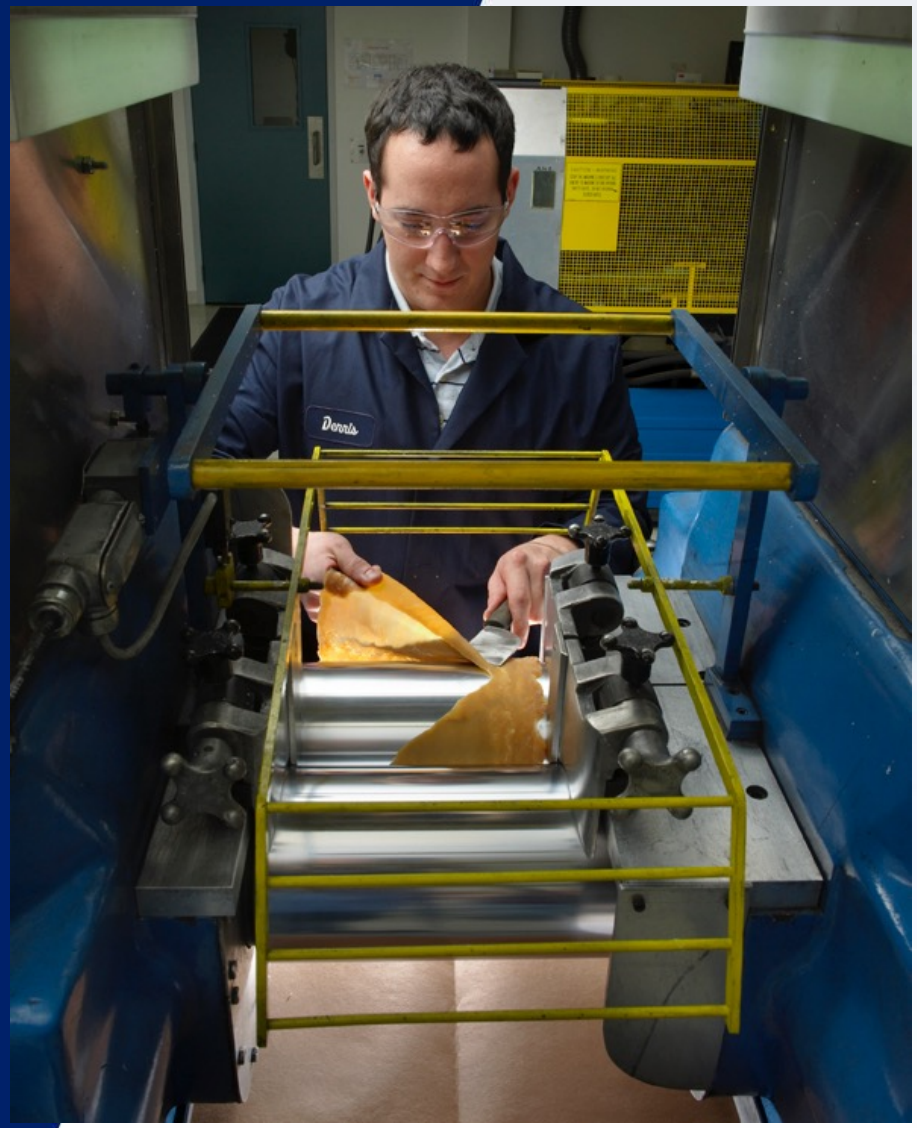
AFLAS Lab – Two-Roll Mill



- Application and formulation development
- Press
- HAAKE™ Rheomix mixing bowl and torque rheometer (includes cam, roller, sigma & Banbury rotors)

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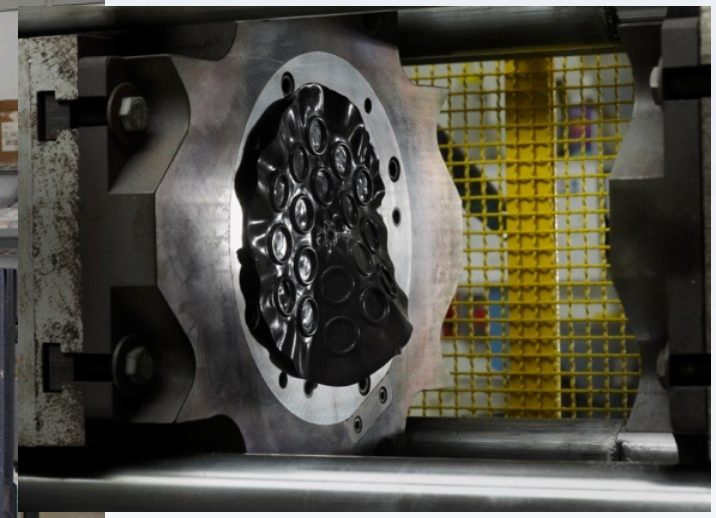
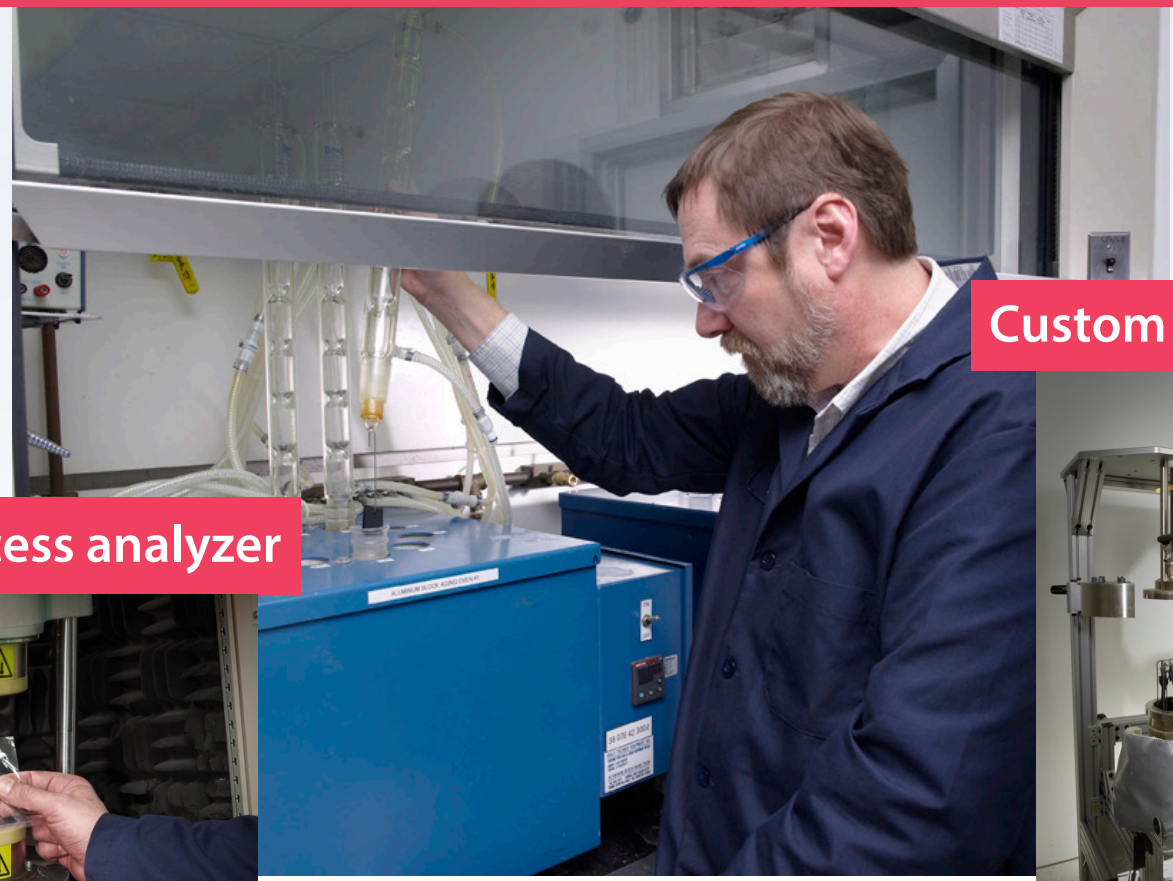
AFLAS Lab – Injection Molding



AFLAS Lab – Testing

Aluminum block aging ovens (chemical compatibility – all products)



Custom pressure vessel

Rubber process analyzer

AGC Chemicals Americas, Inc.

For more information:

Go to www.AGCchem.com
or call 800-424-7833

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