

Katon[®]



KATON[®] PF80E / AFLAS

High Performance Specfluoroelastomer

KATON® FEPM PF80E / AFLAS Series specfluoroelastomer

KATON® PF80E is an improved processing version of **KATON® FEPM** signed to match **KATON® PF80E** closely as possible in terms of fluid resistance. The monomer composition of **KATON® PF80E** is virtually identical to **KATON® PF80E**, but due to optimized polymer architecture, compounds based on **KATON® PF80E** exhibit the following:

- Faster cure rates
- Improved flow at high shear rates
- Slightly higher tensile strength
- Improved resistance to compression set
- Equivalent fluid and chemical resistance

Compounds based on **KATON® PF80E** can be readily processed in the same manner used for mixing, preforming, and molding conventional fluoroelastomers.

Processors will note that compounds based on **KATON® PF80E** will typically mix slightly faster, extrude somewhat more smoothly, and exhibit less mold sticking than the same compound based on **KATON® PF80E**.

KATON® PF80E will typically mix slightly faster, extrude somewhat more smoothly, and exhibit less mold sticking than the same compound based on **KATON® PF80E**.

Before handling or Processing **KATON® PF80E**, be sure to read and be guided by the suggestions in **KATON® Performance Elastomers** technical bulletin “Handling Precautions for Fluoroelastomer and Related Chemicals.”



Product Description

Appearance	Black/White
Odor	None
Specific Gravity	1.82~2
Specific Stability	Excellent

Physical

Typical value unit

Mooney Viscosity (ML 1+10,121°C)	Nominal 60
Fluorine Content	67~70%
Working Temperature	-10°C~250°C

Notes

Typical properties: these are not to be construed as specifications.

Original Properties

Hardness, Shore A (ASTM D2240)	74
Tensile strength, MPa (ASTM D412)	29
Tensile strength, Psi	2390
Elongation, % (ASTM D412)	280

Compression set

Hardness change, points	-3
Tensile change, %	-32
Elongation change, %	-27

Solvent test

volume change %

22 hrs 175C	20.5
22 hrs 200C	42
Ethyl Acetate(168hrs.@23°C)	25
MEK(ketone)(168hrs.@23°C)	1
70% Nitric Acid (70 hrs.@70°C)	10
Water Immersion(168 hrs.@100°C)	2
45% Potassium Hydroxide(70hrs.@70°C)	0.3

Spec FKM ASTM D1418

D2240 Designation:PF80E

ISO 1629 Designation: FEPM

ASTM D2000/SAE J200

Type Class: HK



Chemical resistance Volume change

Chemical	Temp	Change after 168hr (%)	Outcome	Change after 500hr (%)	Outcome
Hydrochloric acid 35%	40°C	0.9	A	1.0	A
Sulfuric acid 96%	40°C	0.3	A	0.5	A
Nitric acid 60%	40°C	0.9	A	1.4	A
Formic acid 88%	40°C	1.4	A	2.3	A
Acetic anhydride	40°C	2.3	A	3.7	A
Aqueous ammonia 28%	40°C	1.0	A	1.6	A
Tetrahydrofuran	40°C	3.9	A	5.1	B
2-Methyltetrahydrofuran	40°C	3.5	A	5.2	B
Acetaldehyde	25°C	2.1	A	2.8	A
Acetophenone	40°C	0.5	A	0.8	A
Formalin 35%	40°C	0.3	A	0.6	A
Methanol	40°C	1.1	A	1.7	A
Ethanol	40°C	0.7	A	1.1	A
Acetone	40°C	2.9	A	3.5	A
Methyl ethyl ketone	40°C	2.9	A	3.5	A
Isophorone	40°C	0.3	A	0.4	A
Ethyl acetate	40°C	3.7	A	4.2	A
Methyl isobutyl ketone	40°C	1.3	A	2.0	A
Acetylacetone	40°C	1.8	A	2.5	A
Buthyl acetate	40°C	1.9	A	2.8	A
Diethyl ether	25°C	3.1	A	4.9	A
Hexane	40°C	4.6	A	5.5	B
Cyclohexane	40°C	2.0	A	3.0	A
Isooctane	40°C	1.9	A	3.1	A
Benzene	40°C	3.4	A	4.4	A
Toluene	40°C	2.5	A	3.6	A
Xylene	40°C	1.7	A	2.6	A
Tetrachloroethylene	40°C	3.6	A	5.0	B
Ethylene diamine	40°C	1.6	A	4.3	A
Dimethyl acetamide	40°C	0.5	A	0.8	A
Aniline	40°C	0.1	A	0.3	A
Dimethyl formamide	40°C	0.6	A	0.9	A
ASTM Oil No.1	175°C	0.8	A	1.0	A
ASTM Oil No.3	175°C	2.6	A	2.5	A
Engine oil (SJ)	175°C	1.1	A	1.2	A
Gear Oil	175°C	0.9	A	1.0	A
ATF	175°C	1.5	A	1.7	A
Steam	170°C	4.5	A	4.5	A
Steam (Formulation for hot water)	170°C	1.8	A	1.8	A

Key of outcome

A : Change rate < 5% (Suitable)

B : Change rate 5~20% (No problem in use)

C : Change rate 20~50% (Conditional use)

D : Change rate >50% (Not suitable)

KATON® AFLAS compound

KATON® AFLAS 100, AFLAS 150 (TFE-P)
 Chesial resistance
 Heat resistance
 Insulation

$$\text{---}(\text{CF}_2\text{CF}_2)_m(\text{CH}_2\underset{\text{CH}_3}{\text{CH}})_n\text{---}$$

KATON® AFLAS SP, AFLAS SZ (TFE-P-CSVdF)
 Chesial resistance
 Heat resistance
 Shoping

$$\text{---}(\text{CF}_2\text{CF}_2)_m(\text{CH}_2\underset{\text{CH}_3}{\text{CH}})_n(\text{CS})\text{---}$$

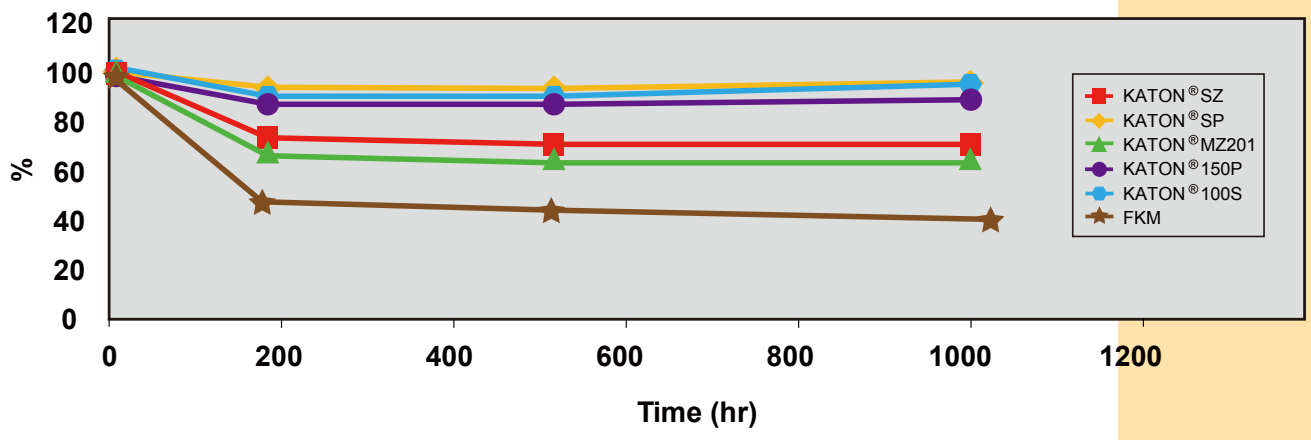
KATON® AFLAS MZ201 (TFE-P-VdF)
 Chesial resistance
 Heat resistance
 Low temperature

$$\text{---}(\text{CF}_2\text{CF}_2)_l(\text{CH}_2\underset{\text{CH}_3}{\text{CH}})_m(\text{CH}_2\text{CF}_2)_n\text{---}$$

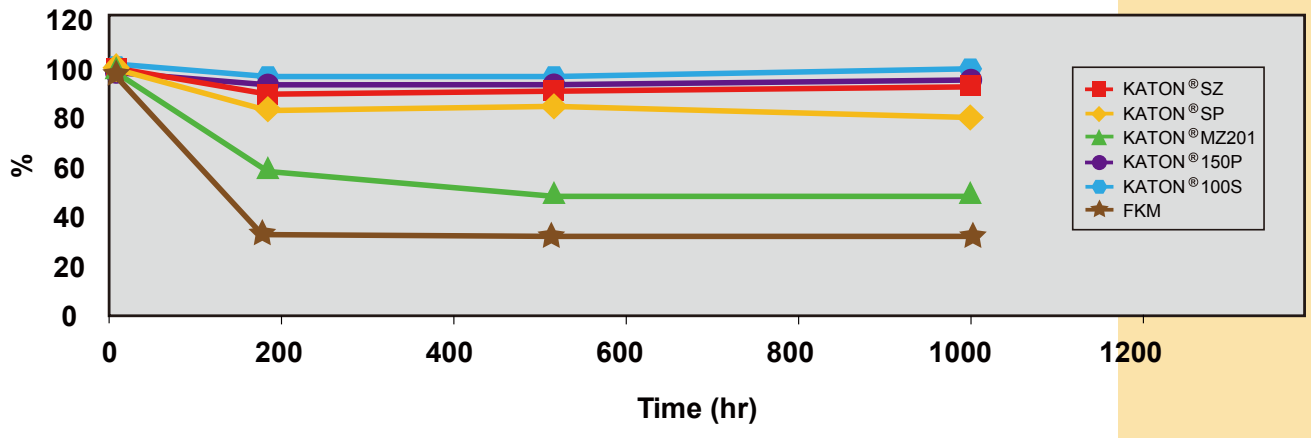
KATON® FKM (VdF-HFP, VdF-HFP-TFE)

$$\text{---}(\text{CH}_2\text{CF}_2)_m(\text{CF}_2\underset{\text{CH}_3}{\text{CF}})_n\text{---} \quad \text{---}(\text{CH}_2\text{CF}_2)_l(\text{CF}_2\underset{\text{CH}_3}{\text{CF}})_m(\text{CF}_2\text{CF}_2)_n\text{---}$$

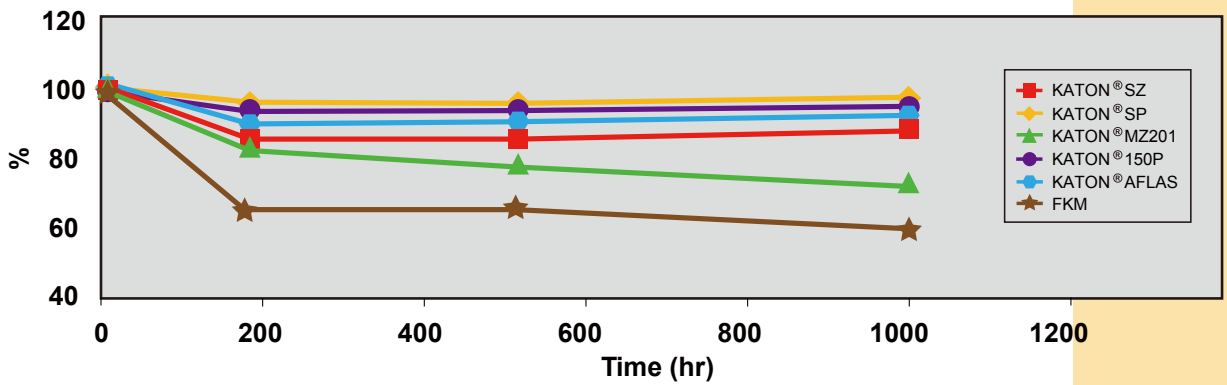
Toyota SJ oil 175°C - Tensil strength



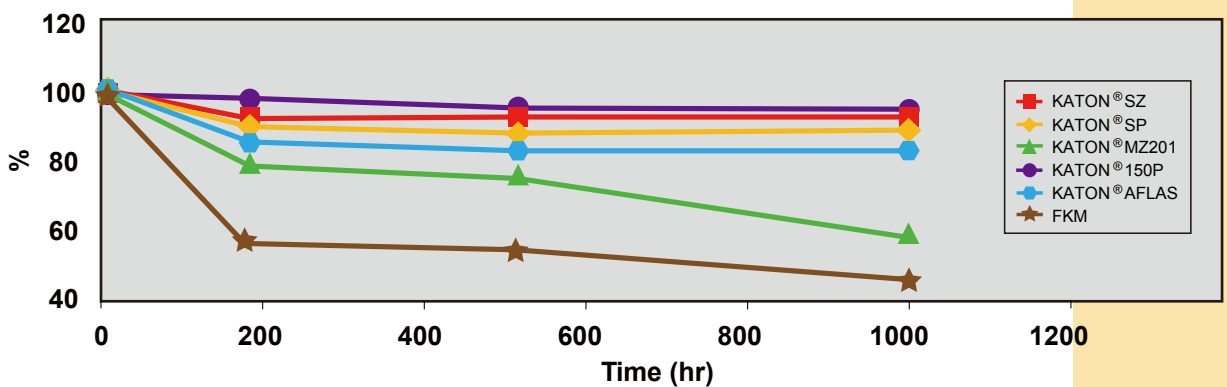
Toyota SJ oil 175°C - Extension strength



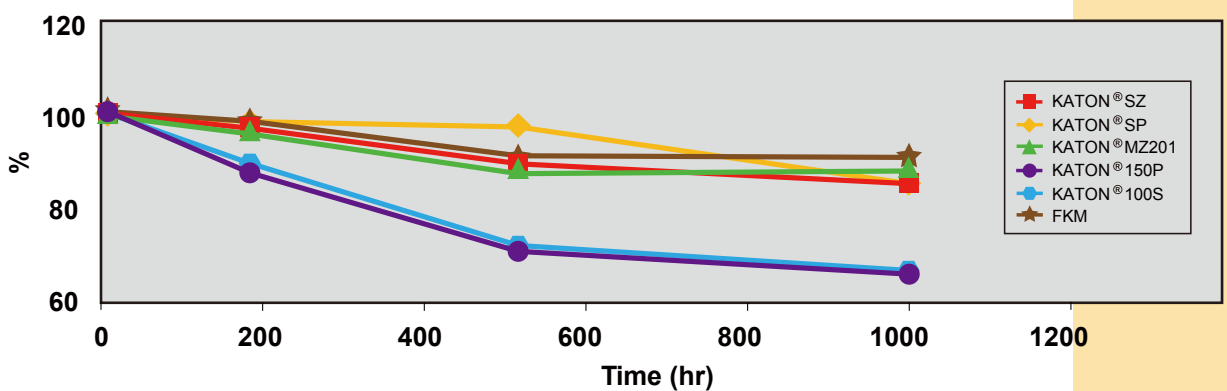
Toyota auto fluid D-II 175°C - Tensile strength



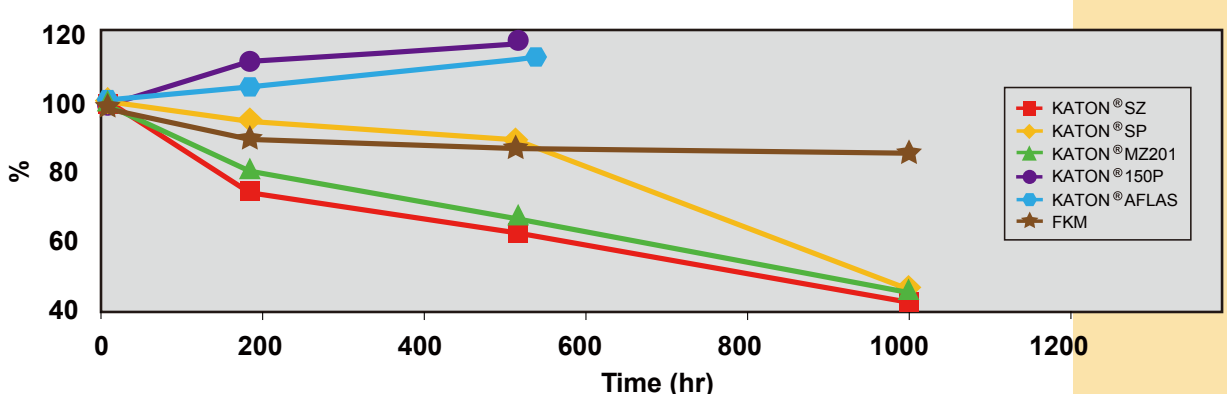
Toyota auto fluid D-II 175°C - Extension strength



Heat resistance 230°C - Tensile strength

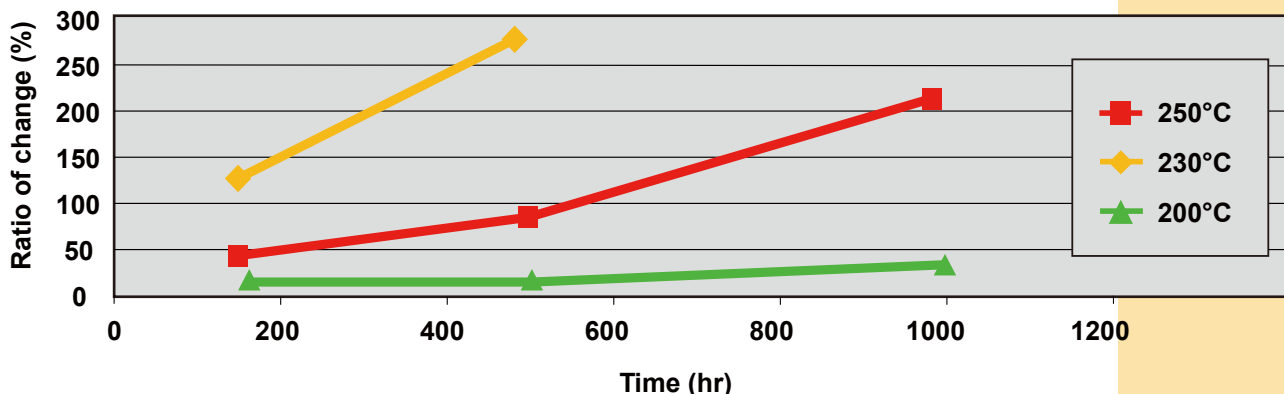


Heat resistance 230°C - Extension strength

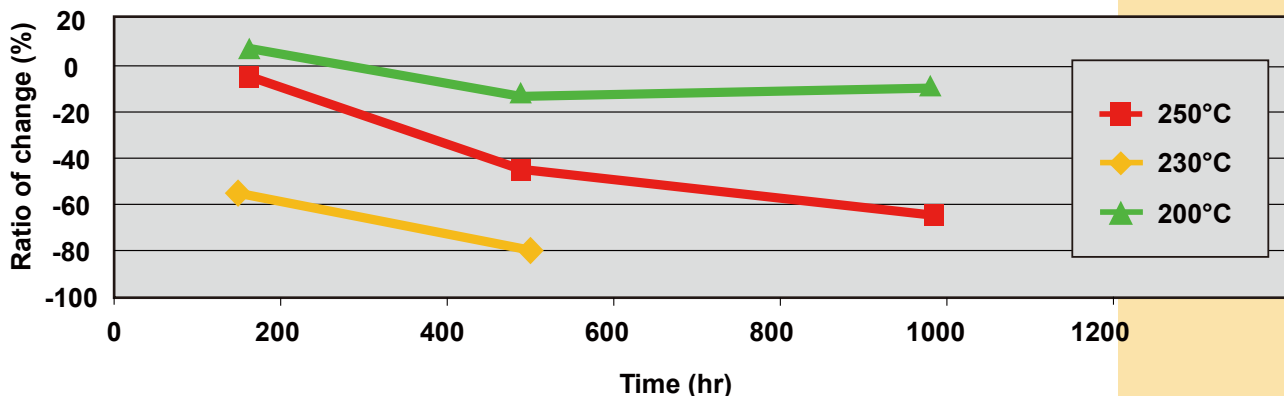


Thermal aging test by air heater

Elongation change



Tensile strength change



*Above statistic is from AGC AFLAS techaial ciata



Maxmold Polymer Co., LTD

ADD No. 18, Ln. 434, Sec. 4, Zhonghua Rd., Xiangshan Dist., Hsinchu City 30094, Taiwan
 TEL 886-3-538-0817
 FAX 886-3-538-0827
 E-mail service@maxmold.com
 Web www.maxmold.com

Material Safety Data Sheets (MSDS) are available by emailing us or contacting your sales representative. Always consult the appropriate MSDS before using any of our products. Neither Maxmold® Specialty Polymers nor any of its affiliates makes any warranty, express or implied, including merchantability or fitness for use, or accepts any liability in connection with this product, related information or its use. Some applications of which Maxmold's products may be proposed to be used are regulated or restricted by applicable laws and regulations or by national or international standards and in some cases by Maxmold's recommendation, including applications of food/feed, water treatment, medical, pharmaceuticals, and personal care. Only products designated as part of the Maxmold® family of biomaterials may be considered as candidates for use in implantable medical devices. The user alone must finally determine suitability of any information or products for any contemplated use in compliance with applicable law, the manner of use and whether any patents are infringed. The information and the products are for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right.

All trademarks and registered trademarks are property of the companies that comprise the Maxmold® Group or their respective owners.
 © 2021 Maxmold Specialty Polymers. All rights reserved.