



product information

AFLAS[®] 100H

DESCRIPTION

AFLAS[®] Fluoroelastomers are copolymers of tetrafluoroethylene and propylene. This combination gives AFLAS Fluoroelastomers unique properties over conventional FKM-type fluoroelastomers in demanding applications found in the oil & gas, chemical process, industrial equipment, food handling, pharmaceutical, heavy duty diesel and automotive industries. AFLAS Fluoroelastomers display outstanding resistance to heat, acids and bases, many solvents, ozone, and steam. Classified by ASTM D 1418-01 as FEPM.

MATERIAL FEATURES

- High molecular weight
- Outstanding elongation, even in formulations with high hardness
- Excellent base and amine resistance unmatched by FKM-type fluoroelastomer
- High heat resistance
- Outstanding steam resistance

END USER BENEFITS

- Preferred material for high pressure and high temperature (HPHT) in oil & gas applications
- Long service use (> 25 years) in harsh environments
- Can be compounded to be highly resistant to rapid gas decompression (e.g. NORSOK)
- Chemical durability (e.g. oil exploration and production fluids)

TYPICAL APPLICATIONS

- O-rings
- Gaskets
- Oilfield parts
- Heavy Duty seals
- And more...

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CURE AND CONDITIONS

AFLAS 100H must be optimally formulated to take full advantage of its physical properties. Note that the optimal formulation depends on the intended use. AFLAS 100H is peroxide-curable. The best performing peroxide is Perkadox[®] P-14Sfl or Vul-Cup[®] 40KE. TAIC* is the recommended co-agent and is required for the cure. Press cure is accomplished at 170°C for 20 minutes. Press cure conditions (temperature and time) should be decided in consideration of various factors, such as the size of parts, required properties, scorch safety and mold release.

To achieve the best physical properties, AFLAS 100H also requires a post cure. The recommended standard condition is 200°C for ≥ 4 hours. The strength can be further enhanced by adjusting the condition to 230°C for ≥ 4 hours. Depending on the size of the part, the cure time must be optimized.

* Triallylisocyanurate

If at any time you have questions or concerns about a specific application, please contact your account manager for assistance.

Perkadox[®] is a registered trademark of Akzo Nobel Chemicals, B.V.

Vul-Cup[®] is a registered trademark of Arkema, Inc.

AFLAS 100H RPA (CURE) COMPOUND DATA

177°C, 100CPM, 3° Strain, 12 minutes

Property	Units	AFLAS 100H
Min S'	dNm	11.9
Max S'	dNm	49.8
50% Cure	min	1.3
90% Cure	min	4.6

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AFLAS 100H COMPOUND COMPARATIVE PROPERTIES

Property	Units	AFLAS 100H
Tg (Glass transition temperature)	°C	-3
TR-10	°C	+3
Brittle Point	°C	-40
Compression Set (70hrs @ 200°C)	%	30
Tensile Strength, Yield	MPa/psi	21/3046
M100	MPa/psi	6/870
Elongation	%	300
Fluorine Content	%	57
G' Storage Modulus (nominal) of Raw Gum	kPa	500

Formulation(PHR):

AFLAS 100H	100
MT 990 Carbon	30
TAIC*	5
Peroxide**	1
Sodium Stearate	1

Cure Conditions:

Press cure: 170°C / 20 minutes

Post cure: 200°C / 4 hours

* Triallylisocyanurate

** 1,3-bis(t-butylperoxy)-diisopropylbenzene

NOTE: The data listed here represents typical values for the stated grades of AFLAS® fluoroelastomers. This information should be used as a guide only and not to establish specification limits or design criteria. AGC Chemicals Americas assumes no obligation or liability for any advice furnished by us or for results obtained with respect to this product. All such advice is provided free of charge and the buyer assumes sole responsibility for results obtained in reliance thereon.

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AFLAS 100H COMPATIBILITY DATA

Heat Resistance 200°C for 1000 hours	Units	AFLAS 100H	2-FKM polyol (Type I FKM)
Retention of Tensile Strength	(%)	90	81
Retention of Tensile Elongation	(%)	121	116
Change in Hardness	(Points)	0	+1
Steam Resistance 180°C for 720 hours	Units	AFLAS 100H	2-FKM polyol (Type I FKM)
Retention of Tensile Strength	(%)	87	51
Retention of Tensile Elongation	(%)	105	147
Change in Hardness	(Points)	-5	-29
50% NaOH Resistance 70°C for 720 hours	Units	AFLAS 100H	2-FKM polyol (Type I FKM)
Retention of Tensile Strength	(%)	103	Disintegration
Retention of Tensile Elongation	(%)	94	Disintegration
Change in Hardness	(Points)	0	Disintegration
Volume Change	(%)	-1	Disintegration
IRM 903 Oil Resistance 150°C for 1000 hours	Units	AFLAS 100H	2-FKM polyol (Type I FKM)
Retention of Tensile Strength	(%)	85	N/A
Retention of Tensile Elongation	(%)	109	N/A
Change in Hardness	(Points)	-11	N/A
Volume Change	(%)	+13.4	N/A
SM class Engine Oil Resistance 175°C for 720 hours	Units	AFLAS 100H	2-FKM polyol (Type I FKM)
Retention of Tensile Strength	(%)	85	73
Retention of Tensile Elongation	(%)	105	65
Change in Hardness	(Points)	-8	+2
Volume Change	(%)	+5	0

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HANDLING PRECAUTIONS

AFLAS Fluoroelastomers are stable at normal conditions and are not regulated by the U.S Department of Transportation. Avoid temperatures above 400°C. Fluoroelastomers can react with molten alkali metals and finely divided magnesium and aluminum at temperatures above 425°C. Thermal decomposition of this product at temperatures above 400°C will generate hydrogen fluoride, which is corrosive. No polymerization will occur under normal processing conditions.

The shelf life of AFLAS Fluoroelastomers can be guaranteed by AGC Chemicals for 6 months after date of delivery for unopened packages. However the properties are not impacted by storage time. Storage and handling facilities should be designed to minimize exposure to extreme temperatures and dusty environments.

Wear protective gear and avoid tobacco use at all times when handling fluoroelastomers. Consult your Material Safety Data Sheet for safe handling details or contact your AGC Chemicals Technical Representative for clarification.

For more information and samples contact

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