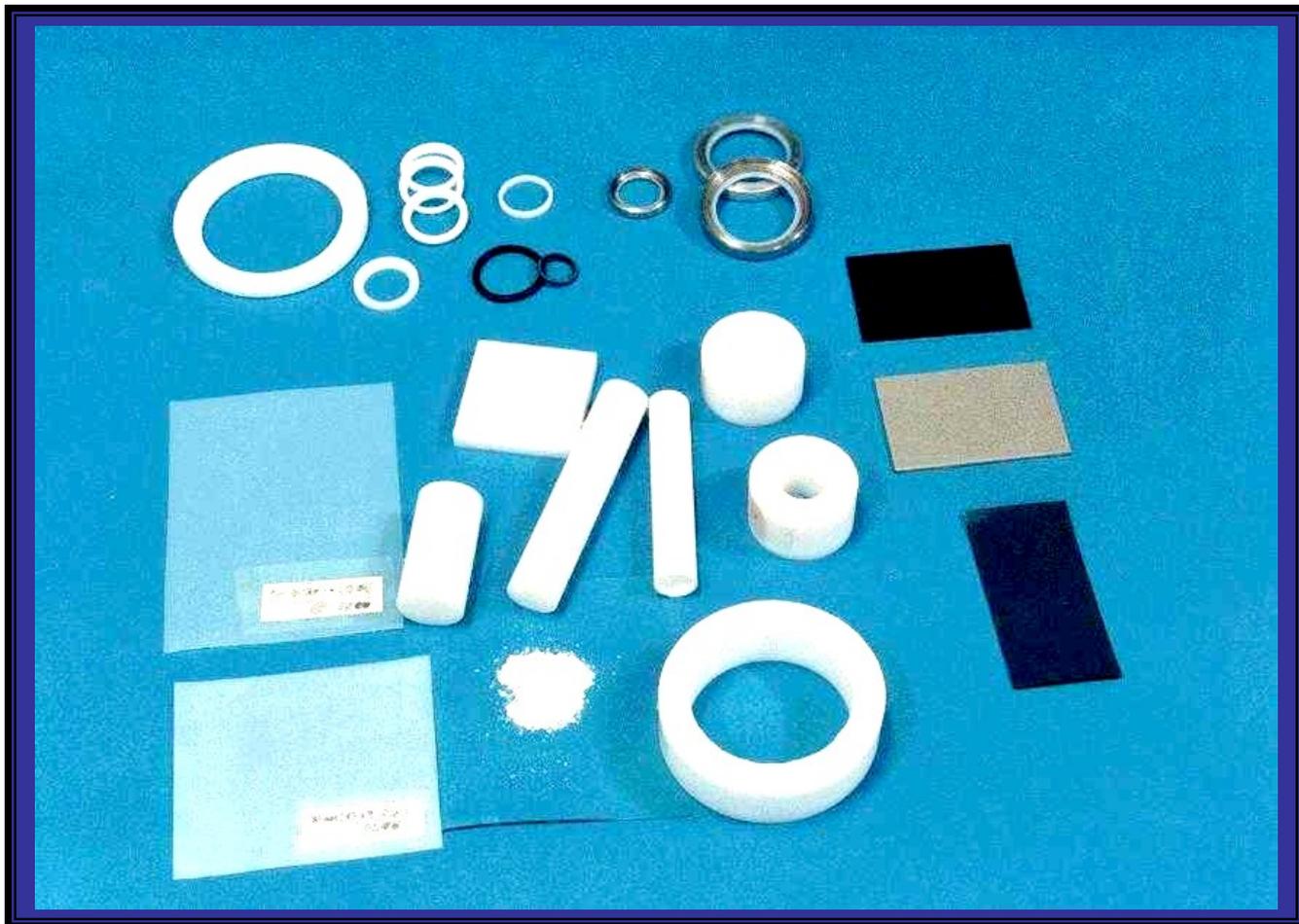


Cross-linked PTFE
EXCERON[®]



Hitachi Metals Ltd.

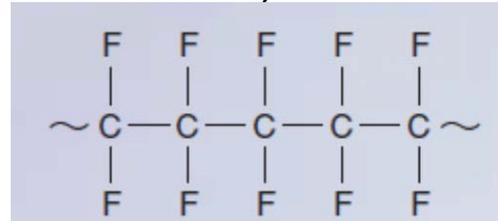
Introduction

(1) What is Polytetrafluoroethylene (PTFE)?

Polytetrafluoroethylene (PTFE) constitutes of fluorine and carbon elements and its structure is one of the simplest among the various fluoroplastic materials. Because of its exceedingly good characteristics in electrical insulation properties, chemical resistance, non-adhesiveness, and low friction factor, PTFE is widely used in various industries, including but not limited to: electric cables, semiconductor, pharmaceutical, food, and clothing.

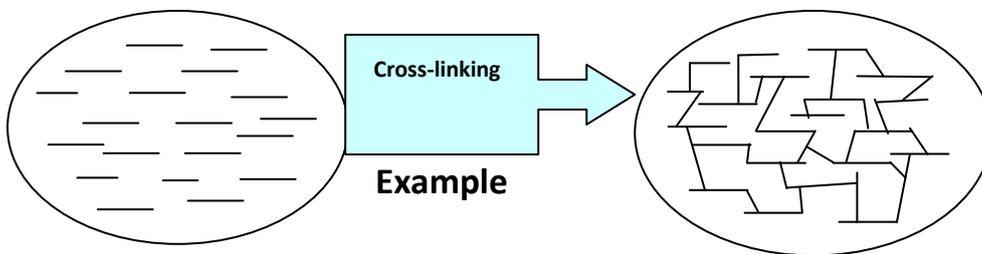
Structure of PTFE

F: Fluorine, C: Carbon



(2) What is Cross-link?

Cross-links are bonds that link one polymer chain to another. Generally, there are several ways to cross-link, such as radiation cross-linking or chemical cross-linking. Various kinds of plastics are produced from these methods.

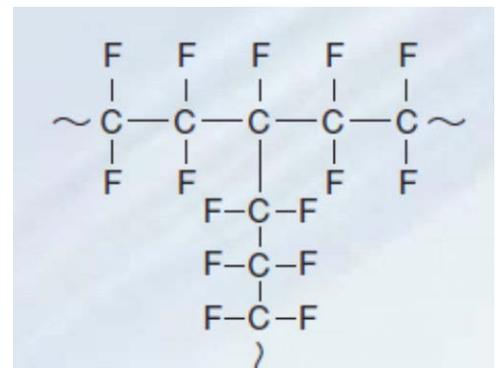


(3) What is **EXCERON**® ?

PTFE is chemically stable and generally not cross-linked by chemical method. Also, it is vulnerable to radiation and will be decomposed by it.

Hitachi Cable developed its unique irradiation technology to cross-link PTFE, and thereby brought **EXCERON**®, the distinguishing and completely new material to the market.

Structure of Cross-linked PTFE



Features of **EXCERON**®

- (1) Abrasion resistance is more than 1,000 times improved in from PTFE.
- (2) Minimum damage to the material rubbed against – even when it is plastic or soft metal such as aluminum.
- (3) Better creep resistance than PTFE in both high and room temperature.
- (4) Springy characteristic that PTFE does not have.
- (5) Processing can be performed like PTFE - cut, paste, fusion, etc.

Variation of **EXCERON**[®]

There are two types of **EXCERON**[®] to satisfy various needs of customers.

Type	Form	Features	Abrasion resistance	Creep resistance	Purity
XF1A Standard	Block Sheet	- Multi-purpose friction material with improved abrasion resistance. - Processing can be performed like general PTFE.	Good	Fair	Excellent
XF1B High performance		- Friction material for highly rough surface, with improved abrasion resistance and creep resistance. - Processing can be performed like general PTFE.	Excellent	Good	Excellent

Comparison against Other PTFE Materials

(1) Abrasion resistance

EXCERON[®] has better abrasion resistance and friction coefficient than PTFE.

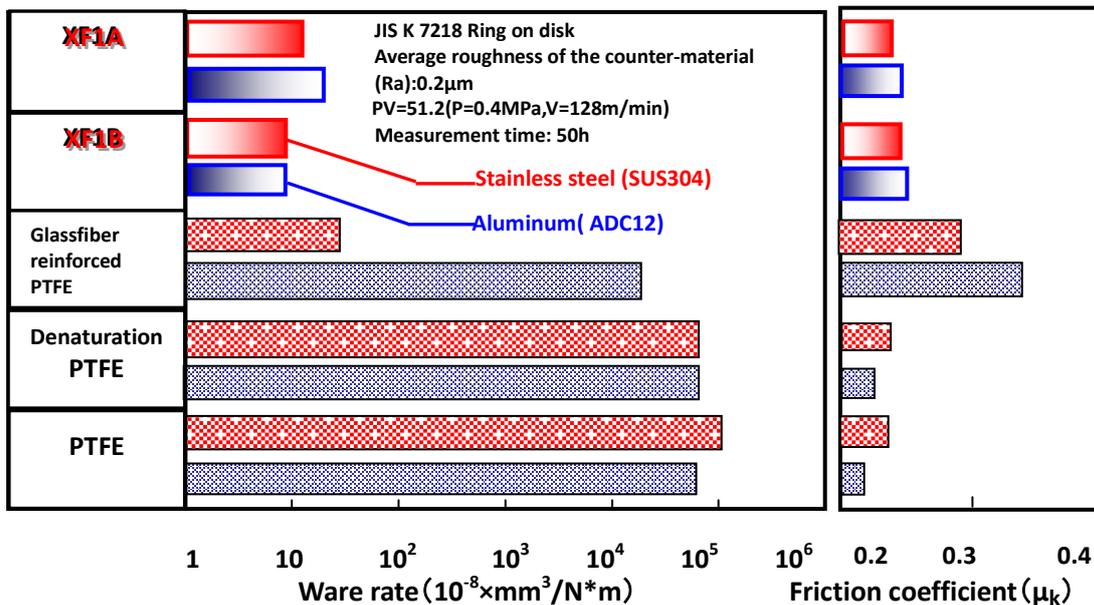
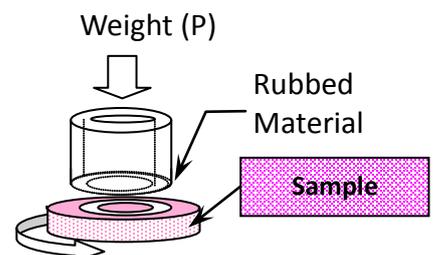


Fig1 PTFE
Examination time: 5min

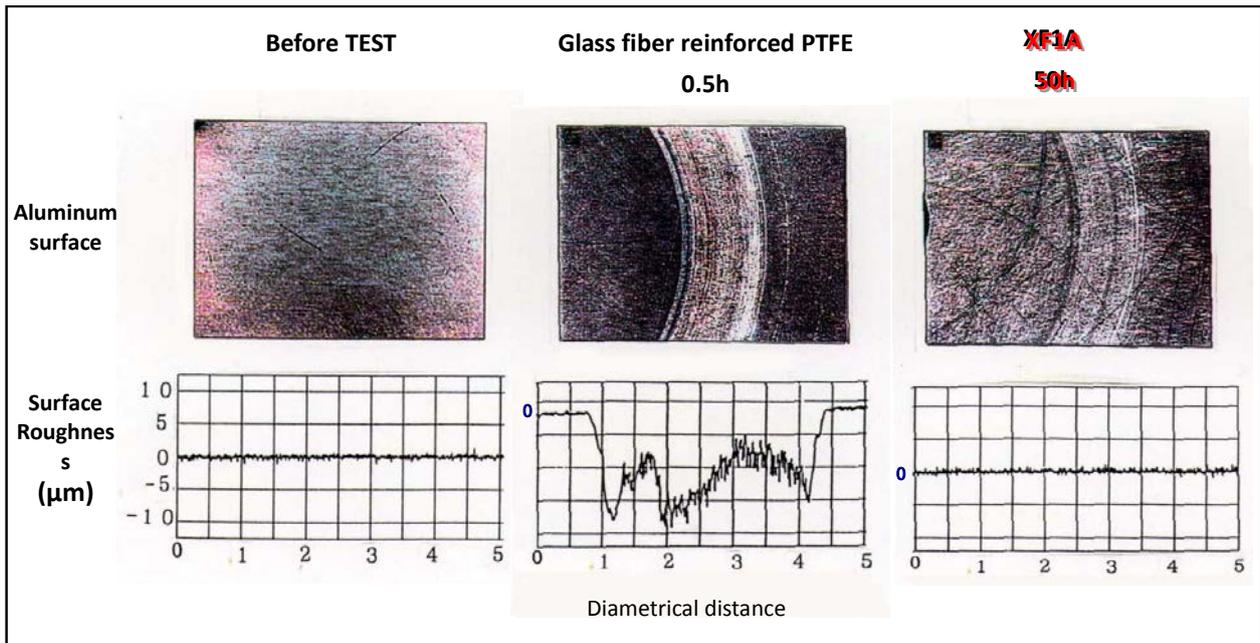


Fig2 XF1B
Examination time: 3,000min



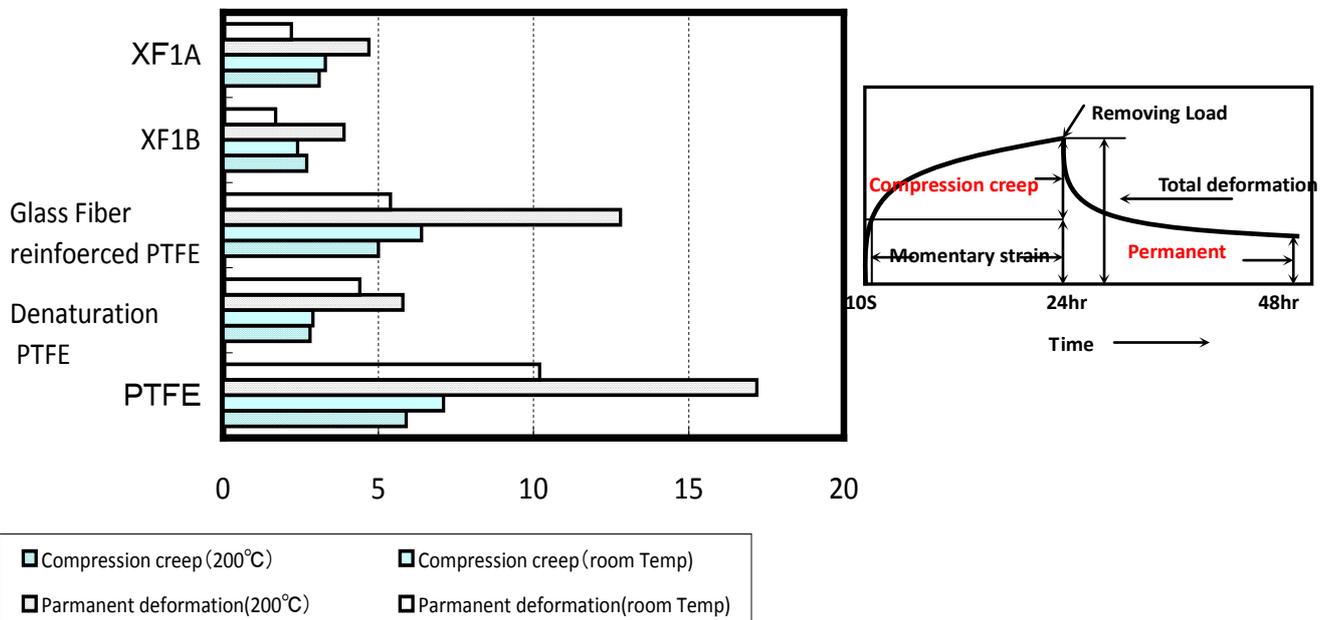
(2) Impact to the rubbed material

EXCERON® is non-filler PTFE and hardly damages the material rubbed against.



(3) Creep resistance

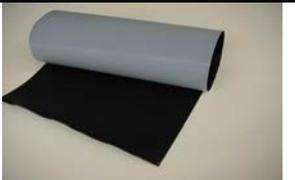
EXCERON® has better creep resistance than PTFE in both high and room temperature.



EXCERON[®] Basic Products

Form	Size	
	Rod	XF1B ($\phi 10 \sim \phi 30\text{mm}$) h=1,000mm XF1B ($\phi 35 \sim \phi 50\text{mm}$) h=500mm *Available in other forms such as in cylindrical and angular.
	Square	XF1A: 300mm \square h=0.5~5mm
	Sheet	XF 1A (Width MAX 300mm) t=0.3~2.0mm XF 1B (Width MAX 300mm) t=0.3~2.0mm *Please contact us about other sizes, dimensions and availability.

EXCERON[®] Processed Products

Product	Feature	Application
Lip Seal 	<ol style="list-style-type: none"> High durability Low torque Non-filler Spring-less 	<ul style="list-style-type: none"> Gas seal of a pump Oil seal of a motor Semiconductor Chemical Industrial machines
Valve Seal 	<ol style="list-style-type: none"> High durability Low torque Non-filler 	<ul style="list-style-type: none"> Ball valve for pipe Semiconductor Chemical Food
Compound Sheet (rubber and XF) 	<ol style="list-style-type: none"> High durability Low friction coefficient Non-adhesiveness Non-filler Cushioning properties 	<ul style="list-style-type: none"> Exfoliation material(sheet)-used for a metallic mold Lining Slide material for industry Food
Dice 	<ol style="list-style-type: none"> High durability Heat resistance Low friction coefficient Non-filler 	<ul style="list-style-type: none"> Capable of injection and extrusion Clothing Food