

## Fuel Barrier Property of “Soarnol<sup>®</sup>”

Fuel barrier property of “Soarnol<sup>®</sup>” is shown in the following.

### (1) Test Method

#### 1) Sample

Multilayer pouch: Thickness (HDPE/Tie/EVOH/Tie/HDPE)=(80/10/20/10/80)  $\mu$  m  
: Surface Area 200cm<sup>2</sup> for both sides (Dimensions 10cm\*10cm)  
EVOH : Soarnol V2603, DT2903, DC3203F

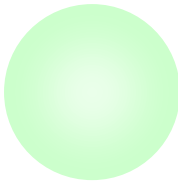
#### 2) Fuel

E10=(Fuel C/EtOH)=(90/10) vol%  
M15=(Fuel C/MeOH)=(85/15) vol%  
Fuel C=(Toluene/ i -Octane)=50/50 vol%

#### 3) Measurement of Fuel Barrier Property

Hold under 40deg C, Dry Atmosphere  
Weigh the pouch after predetermined time

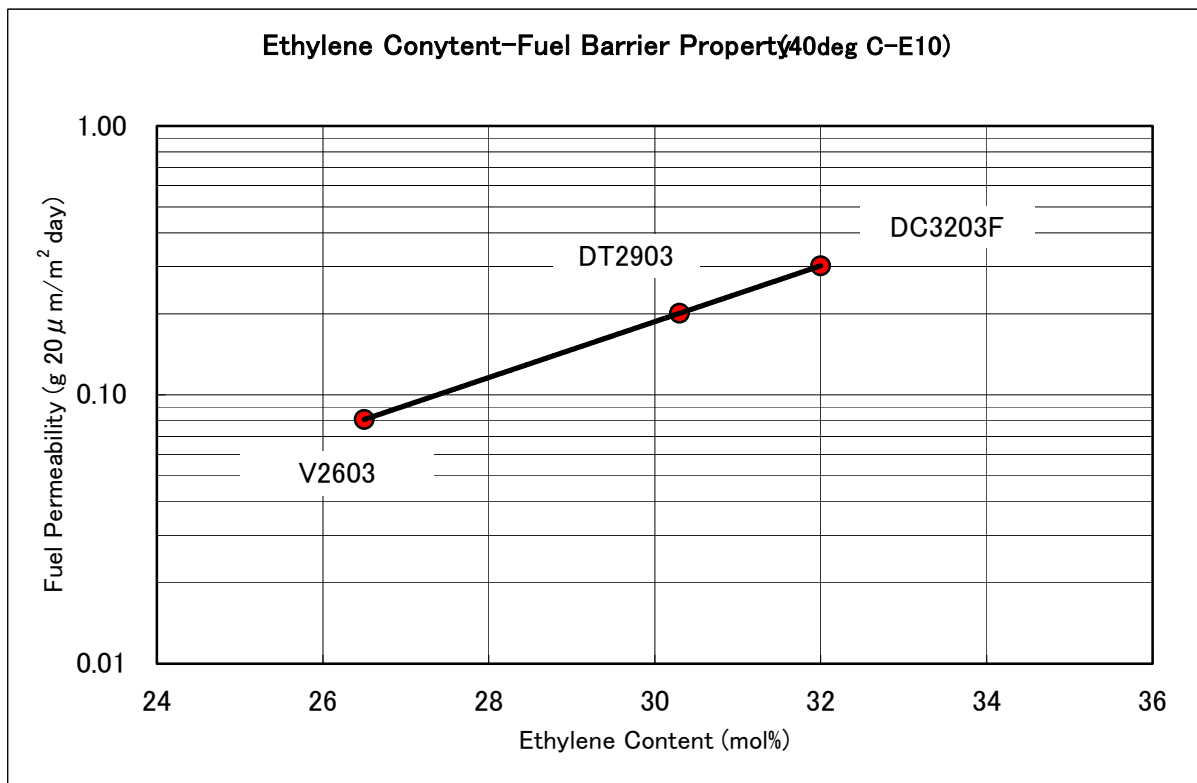




(2)Result

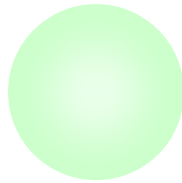
1) E10 system

EVOH	Fuel Permeability (g 20 μ/m <sup>2</sup> day)
Soarnol V2603	0.081
Soarnol DT2903	0.201
Soarnol DC3203F	0.302



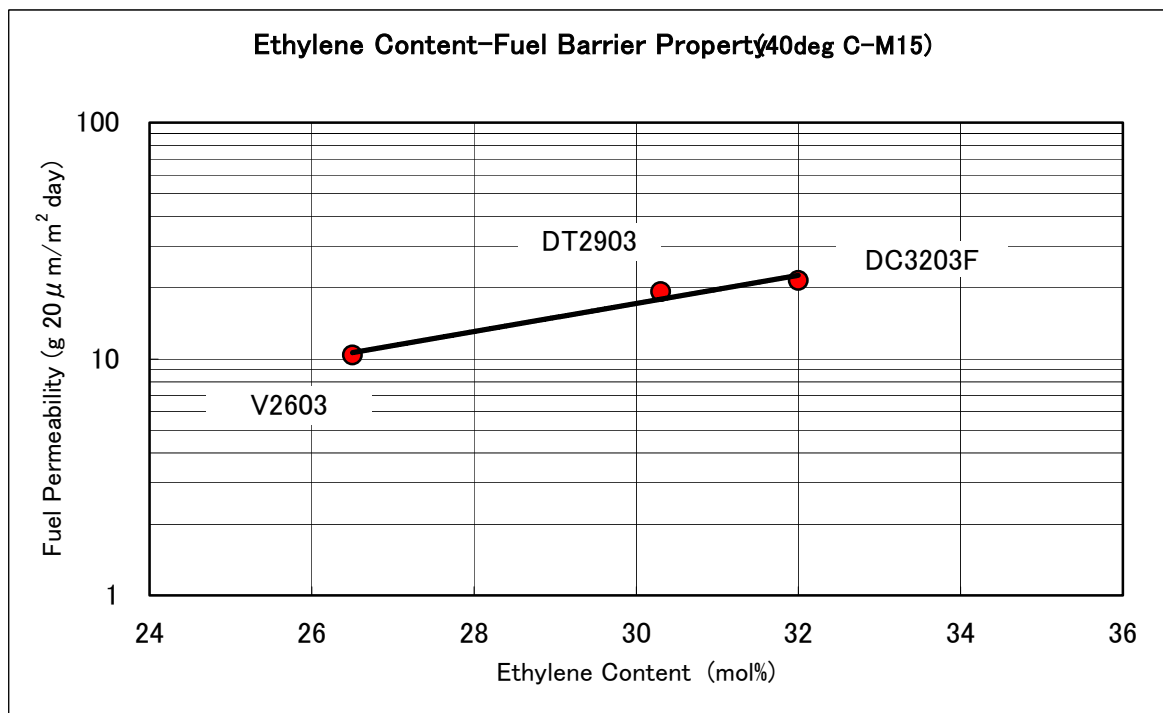
In case of E10 system consisting of ethanol, low ethylene content “Soarnol®” shows high fuel barrier property.





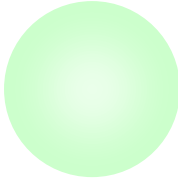
2) M15 system

EVOH	Fuel Permeability (g 20 μ m/m <sup>2</sup> day)
Soarnol V2603	10.4
Soarnol DT2903	17.5
Soarnol DC3203F	21.5



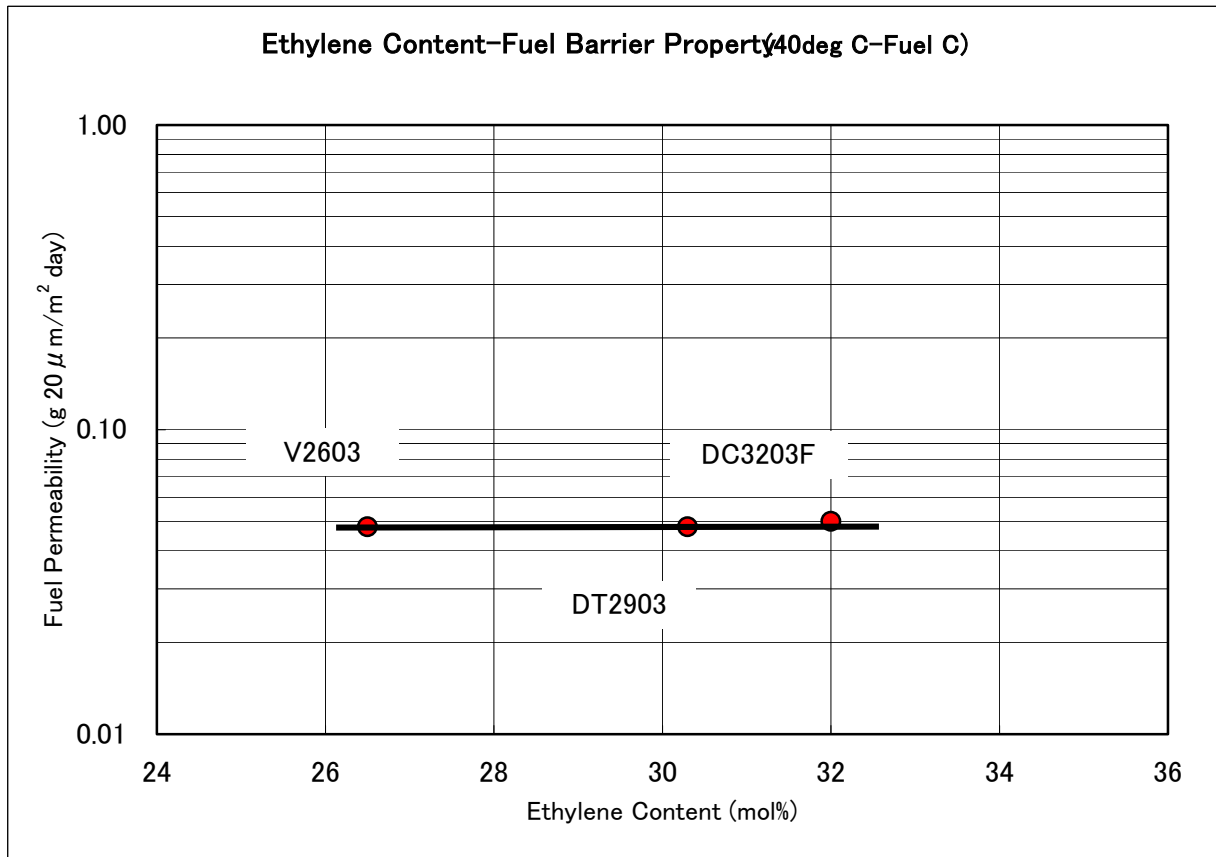
In case of M15 system consisting of methanol, low ethylene content “Soarnol®” shows high fuel barrier property as well as E10 system. However, its barrier level is lower than that of E10 system.





3) Fuel C system

EVOH	Fuel Permeability (g · 20 μ m/m <sup>2</sup> · day)
Soarnol V2603	0.048
Soarnol DT2903	0.048
Soarnol DC3203F	0.050



In case of Fuel C system which doesn't contain alcohol, each "Soarnol<sup>®</sup>" shows high fuel barrier property. Its barrier level is the best of all three fuel systems.



Data Prepared : 1 Sep. 2003