

Product Speciality

●Environmental Friendly characteristic

The [water-soluble film](#) is green environmental Product. It is verified by microorganism tests that [PVA](#) is non-toxic and doesn't restrain from the growth of microorganism and can be degraded totally.

It has no any bad effect on environment. Once PVA is dissolved in water, specific microorganism will cause it to degrade. When treated with activated sludge, solutions of [PVA](#) will be decomposed into water and carbon dioxide.

●Water solubility

1.Solubility is related to [PVA film](#)'s thickness and temperature. According the time of dissolving, the film has three types, quick, middle, difficult, all depend on its thickness and water temperature. Thicker film makes slow dissolving, high temperature makes fast dissolving. Related data is shown as below:

the time of dissolving of [water-soluble film](#)(thickness 35cm, water temperature 20°C)

Type	the beginning of dissolving (sec.)	total dissolving (sec.)
quick	<10 sec.	<2 minutes
middle	<5 minutes	<40 minutes
difficult	don't dissolving when temperature is under 40°C	total dissolving when temperature is over 80°C

2.Appearance has brightness and embossment

3.The color has achromaticity and red, blue, yellow, green.

●Safety

[Water soluble pva film](#) can prevent operators from contacting toxic materials directly.It is safer and more convenient.

●Transparence and lustrousness

[Water-soluble PVA films](#)gain the advantage of higher transparence and lustrousness over other films .

Item	PVA film	Cellophane	PVC film	PET film
Transparence %	90.1	60.5	50.4	57.8
Reflectivity %	81.5	60.5	79.5	22

●Water content

Water content of the [water-soluble PVA film](#) can change with environmental humidity. The [water-soluble PVA films](#) are usually sealed with the PE film to keep its water content invariable. After the [water-soluble PVA films](#) is taken out of the PE film, water content can vary from environmental humidity, whose property also varies with it.

Under normal temperature, its water content and environmental humidity will vary as table:

Relative humidity (RH)	40%	60%	80%	90%
Water content (%)	4-5	7-9	10-12	13-15

● Good gas barrier properties

[Water-soluble PVA film](#) has an excellent gas barrier to oxygen, nitrogen, hydrogen, helium, argon, carbonic acid gas and so on when the humidity is low, but it permit moisture and NH₃ to penetrate. Moreover, it has an excellent fragrance preservation of the contents and can keep products moisture and fresh as well.

Permeability of various plastic mensurated with Salame					
Plastic Parmachor values		Permeability(cc - 20u/m ² - 24h - atm) Real values			
		N ₂	O ₂	CO ₂	O ₂
PVA	160	0.02	0.06	0.21	.02
PVDC	97	0.6	3.6	12	2
PET	68	21	80	310	40
PVC	61	100	200	1000	300
HDPE	39	800	2000	12000	2500
PP	31	1600	5400	20000	3000
PS	27	2400	8000	26000	/
LDPE	26	3200	10000	36000	10000

● Good antistatic properties

Because [water-soluble film](#) has a lot of hydroxyl groups in molecule, it does not take charges. It is different from the film that is made from the other synthetic resins and it has the same antistatic properties as cellophane. If [PVA film](#) is used for product packing, it could keep products out of dust.

The static parameters of various films:

Items	PVA film	Cellophane	PVC film	PE film	PET film
Static pressure (V)	1. 2	1.3	40.5	98.6	120.6

● Good printability

[Water-soluble PVA film](#) has the h₃ polarity and the excellent printability so as to gravure print is beautifully completed without spark-treatment. Presently it has been widely used in the field of special printing, for example, [water transfer printing](#).

●Strength and Weathering resistance

[PVA film](#) has good tenacity, biaxial tension-strength and anti-tearing strength that ranks high among all kinds of films, flexing resistance is 10 times to other films. It has excellent Weathering resistance and service life is very long.

Strength of various films					
Varieties	PVA film	Cellophane	PE film	PP film	PVC film
Tension strength (Mpa)	44.12-63.74	54.92-131.40	17.26-19.12	45.11-53.9	20.59-17.65
Anti-tearing strength (Mpa)	147.10-833.57	1.96-3.92	29.53-98.07	12.75-68.6	39.23-78.45
Elongation percentage (%)	150-400	15-25	50-600	200-600	5-25

●Good heat sealability and adhesiveness

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●Resistance to oil and chemicals

The [Water-soluble PVA film](#) has the good characteristic to resist the oils and fats such as animal oils, vegetable oils, mineral oils, fats, organic solvents and the hydrocarbons to penetrate. However, it can be affected by h₃ acid, h₃ base, chlorine free radical and some special chemical which can react with PVA such as borax, boracic acid and coloring matter and so on, so it isn't fit for packing the above things.

Absorbability of oils and fats						
Spe	Test conditions	PVA	PET	OPP	PE	OPS
Gasoline	20 / ten days	0	1.1	1.1	4.7	
Diesel oil	40 / thirty days	0	3.2	5.2	3.5	2.8
Salad oil	40 / thirty days	0	1.8	3.1	4.6	1.5

Absorbability of solvents (PPM)				
Spe	Methylbenzene	Isopropyl alcohol	Acetic ester	Amount
PVA	3	80	1.1	1.1
EVAL	120	3440	3.2	5.2
CPP	3740	600	1.8	3.1
OPP	6120	430	3700	13040
PET	670	1070	1520	4820

●Anti-falsification

It's the best weapon to protect the top quality products, prolong the using time of the products.