EVERGREEN

One-stop services for flexible packaging

The barrier performance of common plastic film

The barrier performance of plastic is assigned to describe the ability of plastic film or enclosures to barrier the transmission of small molecule gas (such as O_2,CO_2,N_2), water vapor, fragrance and other organic solvents. The index of this barrier ability is calculated by the transmission volume or weight of certain kind of small molecule substances through a certain thick plastic film under some certain pressure, temperature and moisture per minute per square meter. The lower the transmission rate, the better the barrier performance. Below is the Oxygen Transmission Rate and Water Vapor Transmission Rate of common used plastic film.

Oxygen Transmission Rate and Water Vapor Transmission Rate of common used plastic film

Item	Gas Transmission Rate/($cm^3 \cdot m^{-2} \cdot d^{-1}$)			Moisture Transmission Rate $g \cdot m^{-2} \cdot d^{-3}$
	O_2	$C0_2$	N_2	
Low density polyethylene (LDPE)	4000	1400	18500	18
High-density polyethylene (HDPE)	600	220	3000	5~10
Polypropylene (PP)	860	200	3000	19
Oriented polypropylene (BOPP)	550	100	1680	9
Polyvinyl chloride PVC （rigid）	150	56	442	40
Polyvinyl chloride PVC(soft)	320	80	790	—
Polystyrene (PS)	5500	880	14000	110~160
Polyester (PET)	60	25	420	27
Polycarbonate (PC)	200	35	1225	—
Polyving akohol (PVA)	7	—	10	—
Polyamide (PA)	60	16	253	300
Oriented polyamide (BOPA)	20	6	79	145
Polyvinylidene chloride (PVDC)	15	2.2	70	1.5~5

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