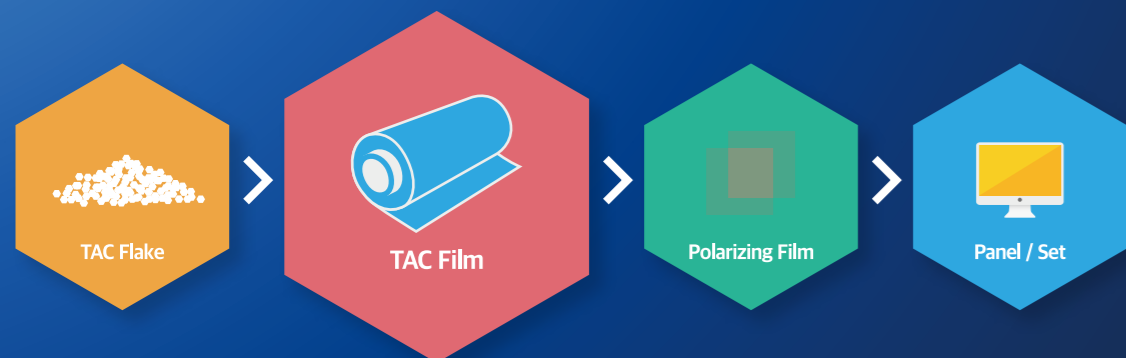




HYOSUNG TAC FILM

TAC(Tri-Acetyl Cellulose) Film is main material for polarizer which is core part of LCD, used in display such as TV, Monitor, Notebook. In 2009, Hyosung built #1 TAC Film line in Ulsan for the first time in Korea, and built #2 line in Cheongju in 2013. Our annual capacity is 110 million m² and We have been supplying TAC Film with good quality to main polarizer makers.



NEW FRONTIER OF OPTICAL FILM

Optical Film Performance Unit
Tri-Acetyl Cellulose Film

www.hyosung.com



 **HYOSUNG CORPORATION**

Chemicals PG Optical Film PU

HQ : (06578) 235, Banpo-daero, Seocho-gu, Seoul, Korea TEL 82-2-2146-5350

Yongyeon Plant : (44784) 130, Yongyeon-ro, Nam-gu, Ulsan, Korea

Oksan Plant : (28101) 99, Oksansandan-ro, Oksan-myeon, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, Korea

 **HYOSUNG**



Optical Film Performance Unit

We developed and produce TAC FILM, the core material for display, with the best technology

Hyosung is jumping up to be the global leading company in various fields of business, including textile, industrial materials, chemicals, heavy industry, construction, trading and IT, with outstanding technical skills and services.

Especially, Optical Film PU has developed TAC Film, whose productivity and quality are remarkably improved, at the very first in Korea, and been growing as a core maker in display field.



HYOSUNG TAC FILM PRODUCTION



HYOSUNG TAC FILM VALUE IN USE



Eco-friendly

Meet hazardous material regulations
 · EU REACH
 · Halogen Free
 · RoHS



Durability

No Acetylation under High Temperature/High humidity
 · No Crystal Mura



Flatness

Superb TAC surface uniformity
 · Excellent coating property (Preventing Coating Mura)

HYOSUNG PLANT

Hyosung produce wide plain film in Ulsan(Yongyeon plant), super-wide plain film in Cheongju(Oksan plant) and annual capacity is 110 million m².

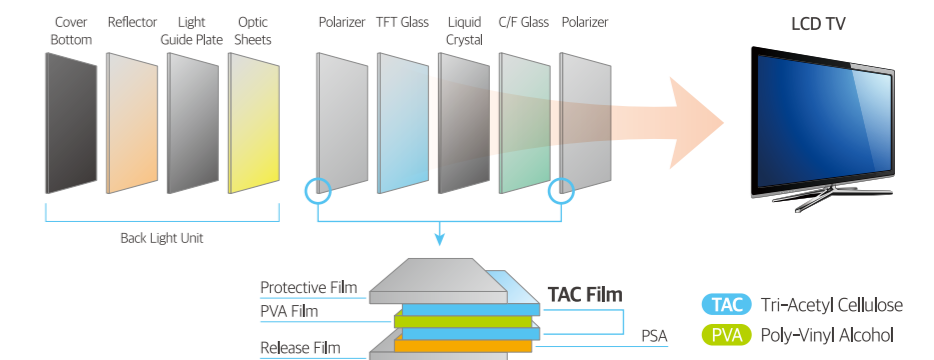


Location : Yongyeon TAC Film #1 Line
Product : TAC Film
Thickness : 80 μ m, 60 μ m, 40 μ m
Width : 1330mm ~ 1500mm
CAPA : 50,000km²/Year



Location : Oksan TAC Film #2 Line
Product : TAC Film
Thickness : 60 μ m, 40 μ m
Width : 1910mm ~ 2260mm
CAPA : 60,000km²/year

TAC FILM FOR LCD



TAC FILM BASIC PROPERTIES

| Item | Unit | Wide Plain TAC (1330~1500mm) | | | Super-wide Plain TAC (1910~2260mm) | | Test Method |
|-------------------------------------|-------------------|------------------------------|------------|------------|------------------------------------|------------|----------------|
| | | 40 μ m | 60 μ m | 80 μ m | 40 μ m | 60 μ m | |
| Manufacturing process | - | Solvent Casting / Belt Type | | | | | |
| Transmittance at 620nm | % | 93 | 93 | 93 | 93 | 93 | JIS B-7113 |
| UV Transmittance at 380nm | % | 5.8 | 3.5 | 2.9 | 4.0 | 3.5 | JIS B-7113 |
| Retardation Ro | nm | 0.5 | 0.5 | 0.8 | 0.4 | 2.0 | Axoscan |
| Retardation Rth | nm | 26 | 31 | 50 | 20 | 40 | Axoscan |
| Haze | % | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | JIS K-7136 |
| Modulus (MD/TD) | N/mm ² | 4100/4300 | 3900/4000 | 3800/3900 | 4300/5000 | 4400/5100 | ASTM D-882 |
| CTE (MD/TD) | μ m/m · °C | 53/63 | 60/61 | 62/59 | 77/56 | 72/58 | TMA |
| Thermal Shrinkage (MD/TD) 90°C×24hr | % | 0.09/0.02 | 0.07/0.02 | 0.07/0.02 | 0.10/0.01 | 0.10/0.01 | Hyosung Method |

* Above data are NOT standard of goods but representative property. Hence there would be changes of properties according to usage.