

# Introduction of WGF™ Wire grid polarizer film

**Asahi Kasei E-materials Corporation**

**Electronics & Functional Products Division  
WGF Project**

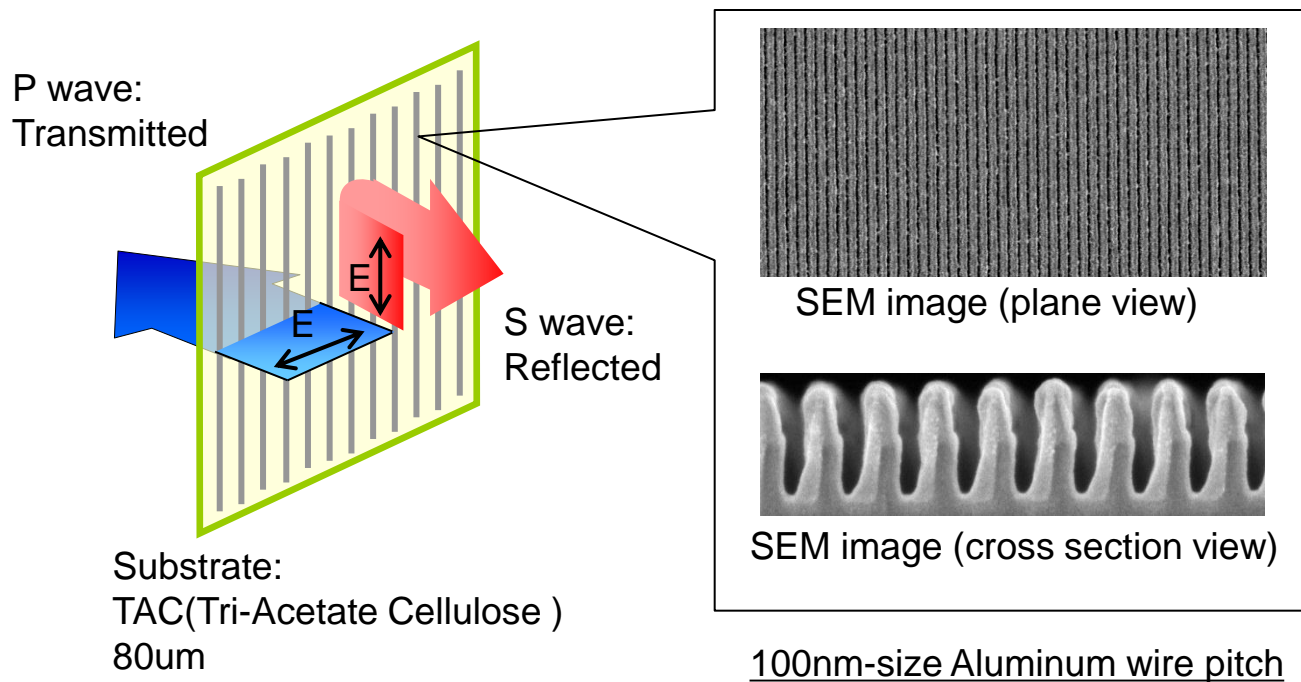
# Asahi Kasei WGF™ – Outline -

## What is WGF™?

"WGF™" is the world's first wire grid polarizer based plastic films. It has a high polarization separation performance in the broad wavelength range by using metal nano-size wires. Furthermore, it has excellent heat resistance compared to a typical absorption polarizer.

## Asahi's Original Technology

- Continuous roll to roll nano-imprint process
- Nano-size structure (100nm pitch Al wire grid)



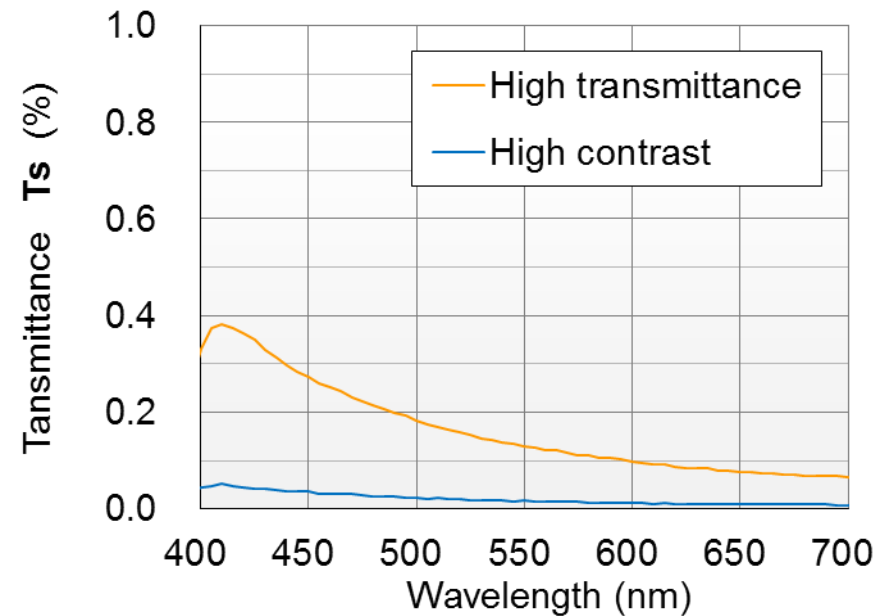
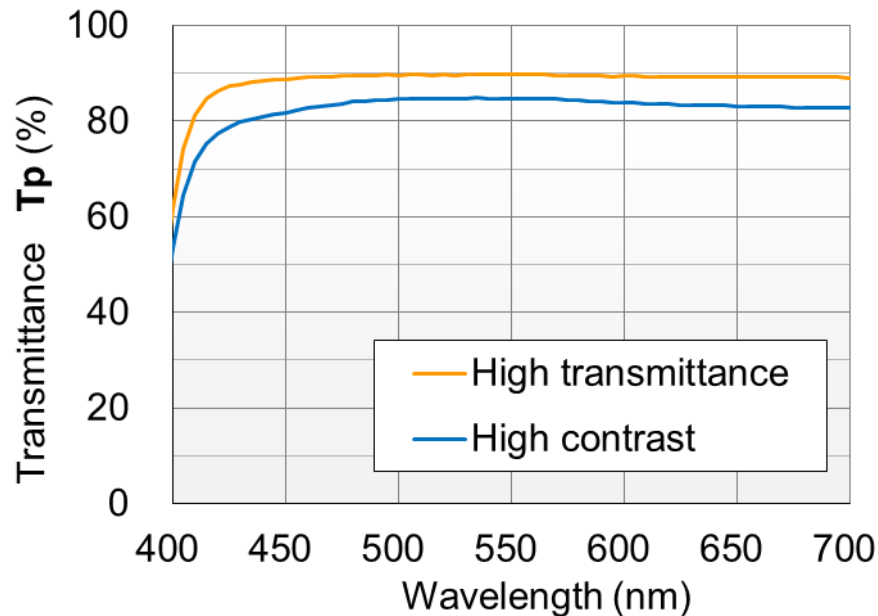
WGF Roll



WGF film

# Optical performance of HC & HT grade

You can choose either standard grade, HC(High Contrast) or HT(High Transmittance) to suite your need. The Adhesive on a backside of substrate is also available.



Type	grade		450nm	550nm	650nm
High Transmittance	<b>HTN (no-adhesive)</b>	Tp (%)	89%	90%	89%
	<b>HTU (with adhesive)</b>	Ts (%)	0.27%	0.13%	0.08%
High Contrast	<b>HCN (no-adhesive)</b>	Tp (%)	82%	85%	83%
	<b>HCU (with adhesive)</b>	Ts (%)	0.04%	0.02%	0.01%

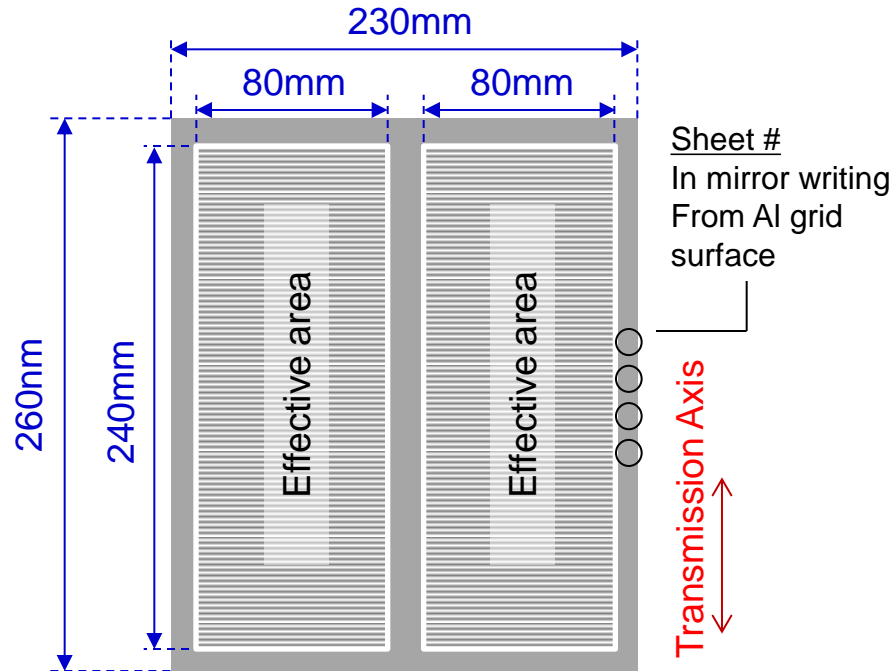
\* Incident angle 0 deg

\* No AR coating on WGF

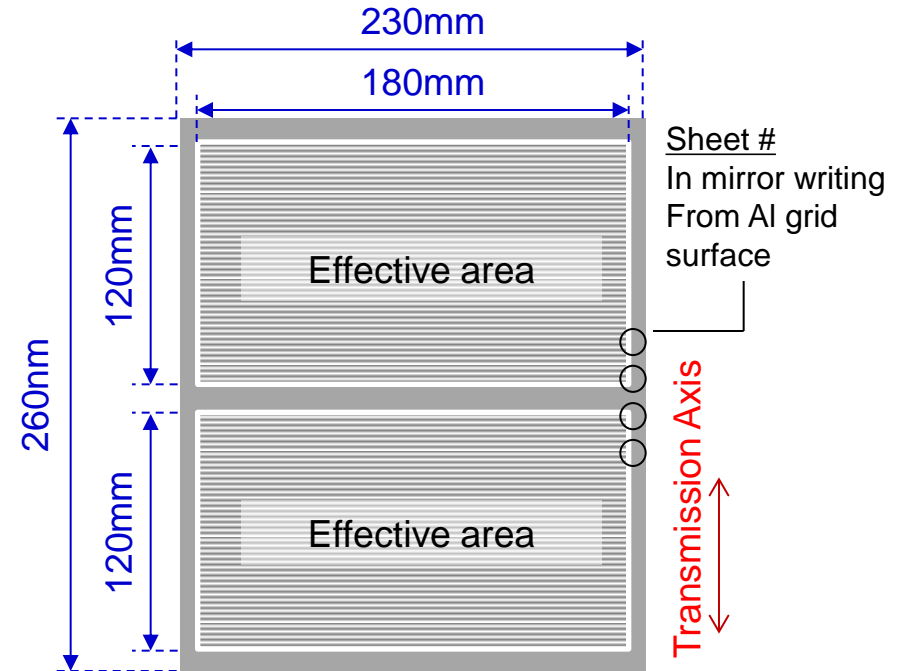
# Product size & Composition

## Sheet size

Type.1 Standard model 240x80mmx2windows

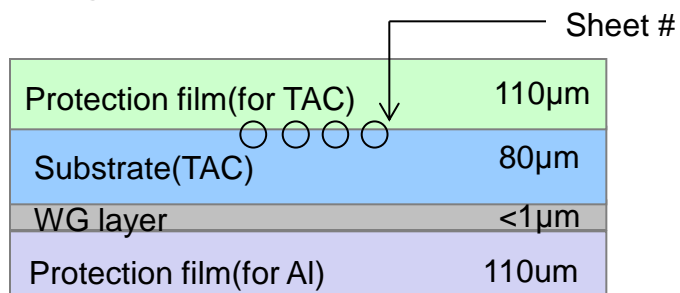


Type.2 developing 120x180mmx2windows

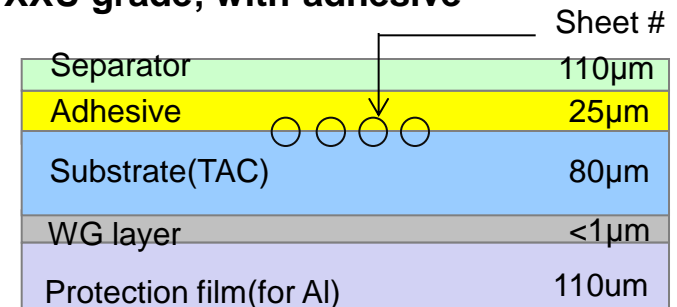


## Composition

XXN grade; no-adhesive

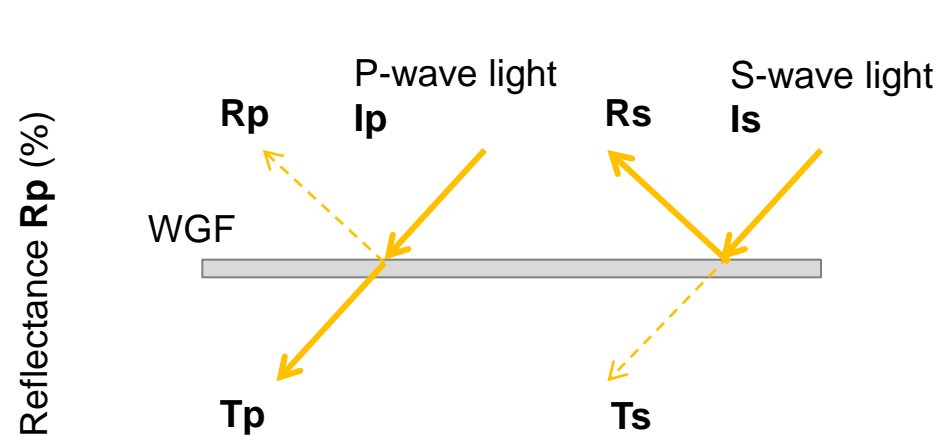
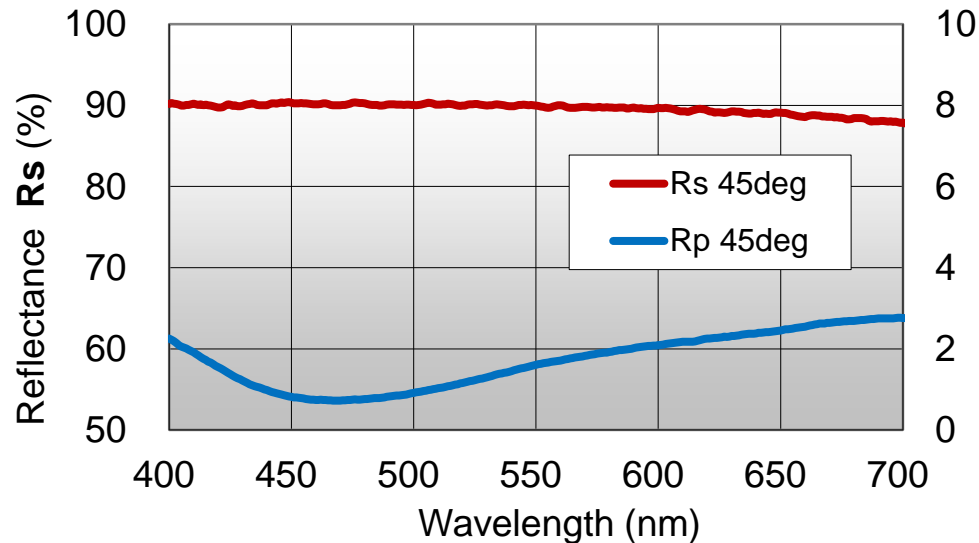
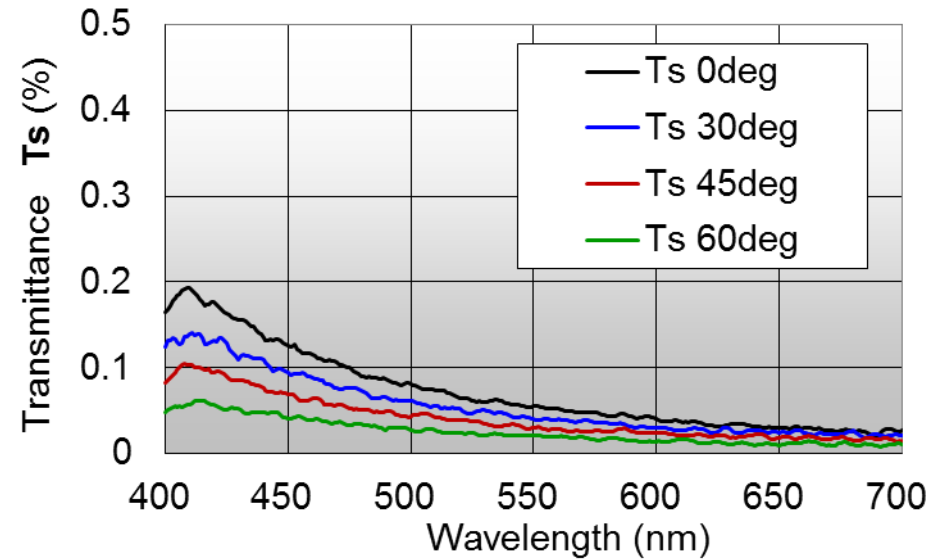
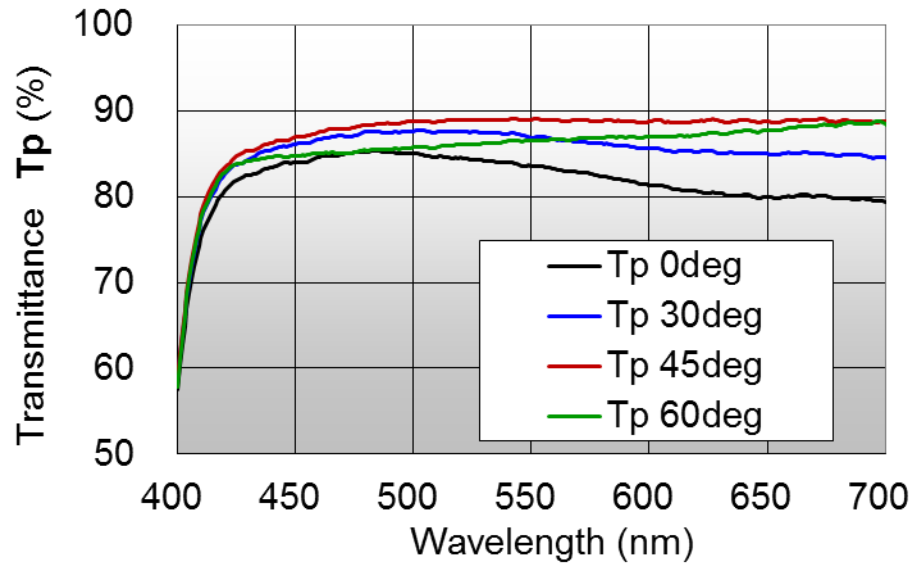


XXU grade; with-adhesive



# Optical performance of HC at oblique incident

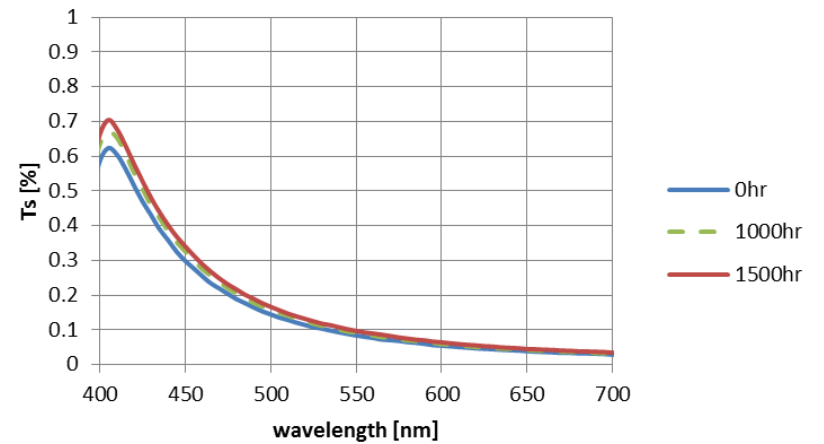
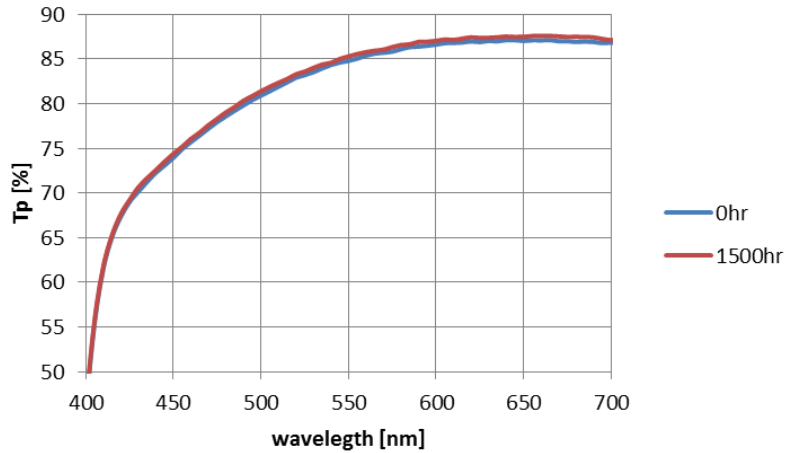
Tp & Ts, Rp & Rs at oblique incident



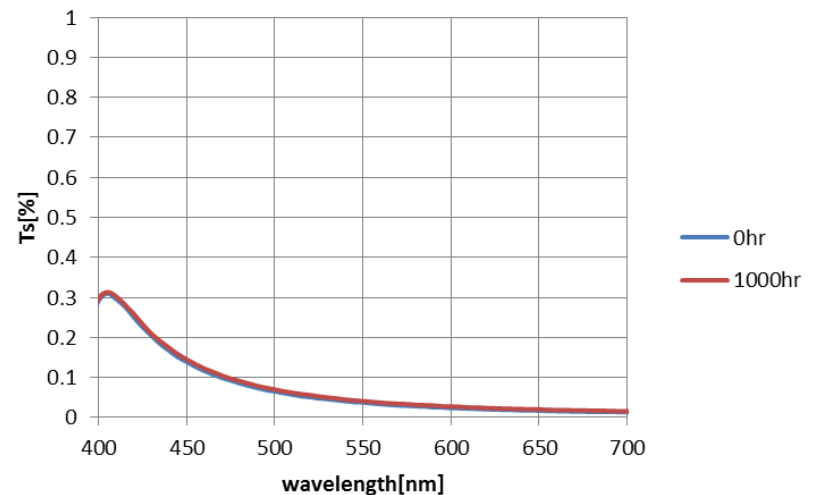
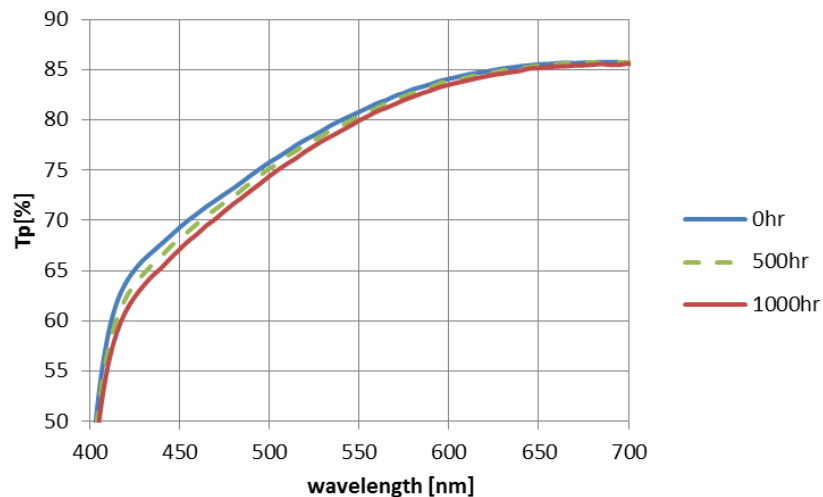
# Reliability

Optical performance of WGF before and after environmental tests

## Heat and humid resistance @60degC/90%RH/1500hr)



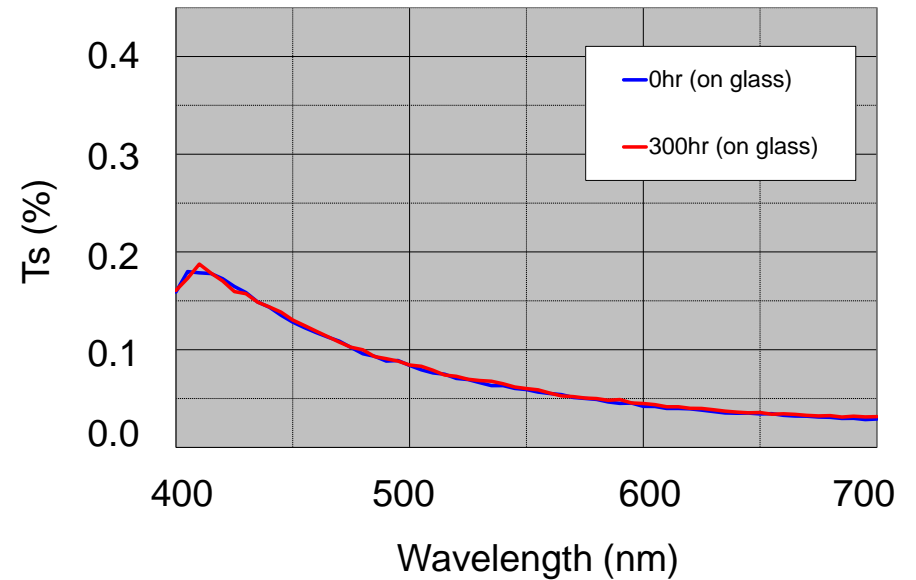
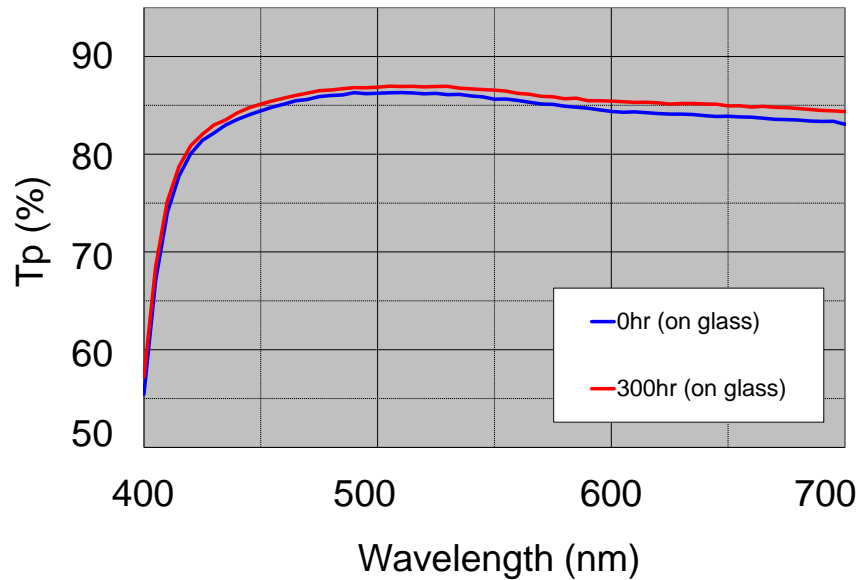
## Heat resistance (105degC/dry/1000hr)



# Reliability

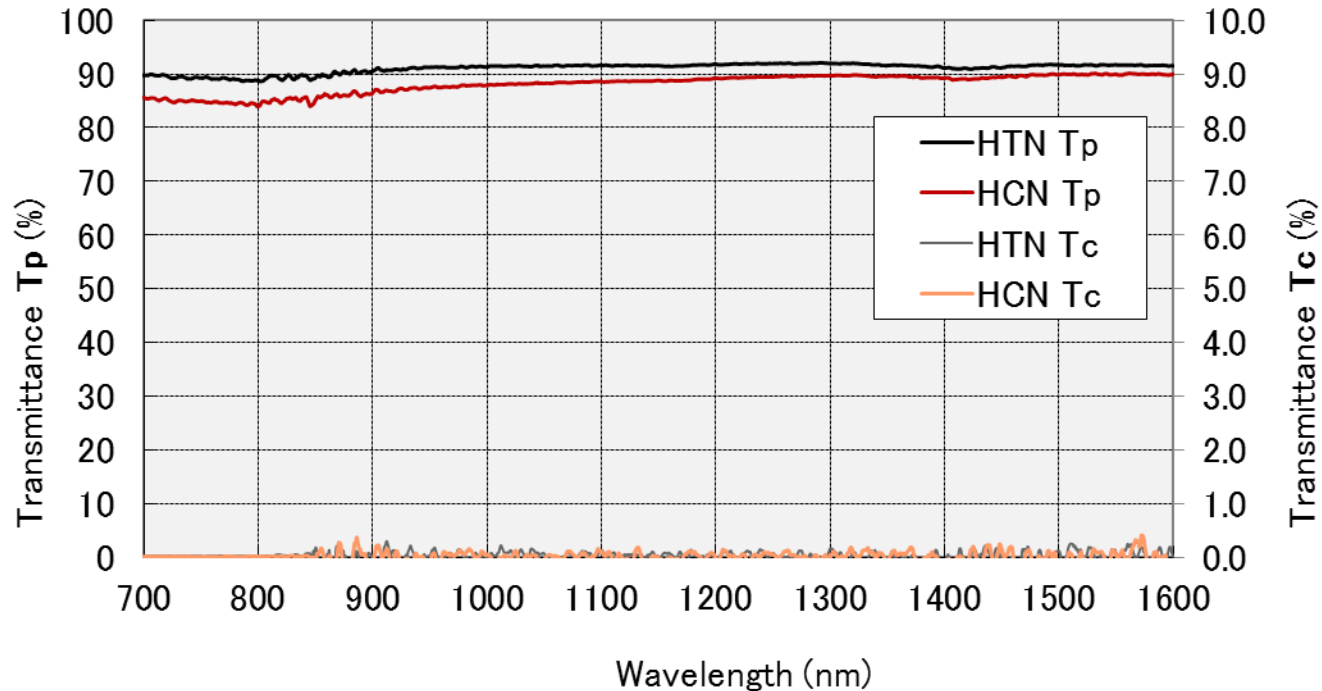
Optical performance of WGF before and after light resistance test

Sunshine weather meter 255W/m<sup>2</sup>/BPT63degC/spray free



# Optical performance in NIR range

WGF can polarize effectively in a wide range from Visible to NIR.





# Summary

## Feature

- Reflective polarization film without absorption loss
- Flexible & excellent processability for cutting and laminating
- Less incidence dependence
- Effective in a wide range from Visible to NIR
- Excellent durability in a hard environment as high temperature (105degC/dry/1000hr) and humidity (60degC/90%RH/1500hr)

## Applications



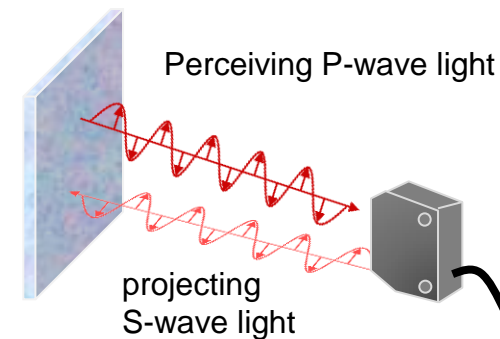
EVF(Electric View Finder)



Optical parts for HMD, head mounted display)



HUD, Head-up display



Noise reduction and anti-reflection of IR sensor

# Contact us

## Japan

Asahi Kasei E-materials Corporation

WGF Marketing & Development Group

Tel.: +81 (545) 62-2028

<http://www.asahi-kasei.co.jp/ake-mate/wgf/en/index.html>

## North America

Nagase America Corp. CA Office

Tel.: +1 408-567-9728

## Europe

Nagase Europe GmbH

Tel.: +49 211 866 2033

