

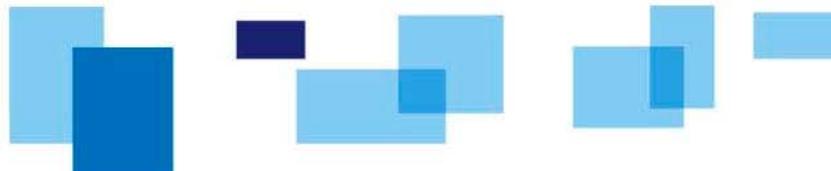


s-lec®

Leading technology, leading the way

# CARB WORKSHOP PROPOSAL

**Sekisui Chemical Co., Ltd.**  
**High Performance Plastics Co.**



## Details of our proposal

### 1 . Tts regulation implementation

Proposal : Average total areas of windshield to determine overall Tts value

Example- 1 : Tts equivalency based on average of deletion areas and non-deletion area

Example- 2 : Inclusion of color band (Tts) as solar management feature

### 2 . The equivalent performance of absorbing PVB in specific conditions

- ① Static condition
- ② Driving condition
- ③ Weather condition



s-lec®

Leading technology, leading the way

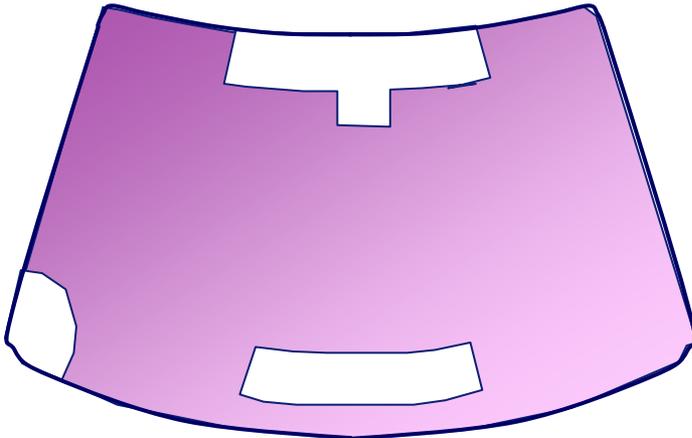
# 1 . Tts regulation implementation proposal

## Proposal details

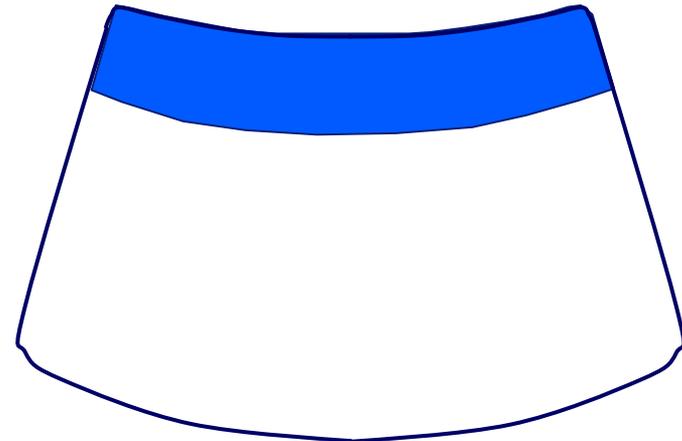
How to calculate Tts based on the different areas of the windshield with different Tts values / specifications

⇒ Average total areas of windshield to determine Tts allowance / equivalencies

Example1: Deletion areas

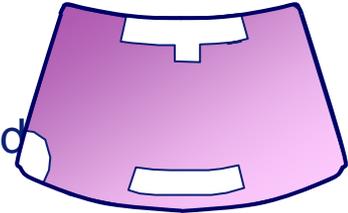


Example2: Color band area



# 1 . Tts regulation implementation proposal

Example- 1 : Tts equivalency based on average of deletion areas and non-deletion area

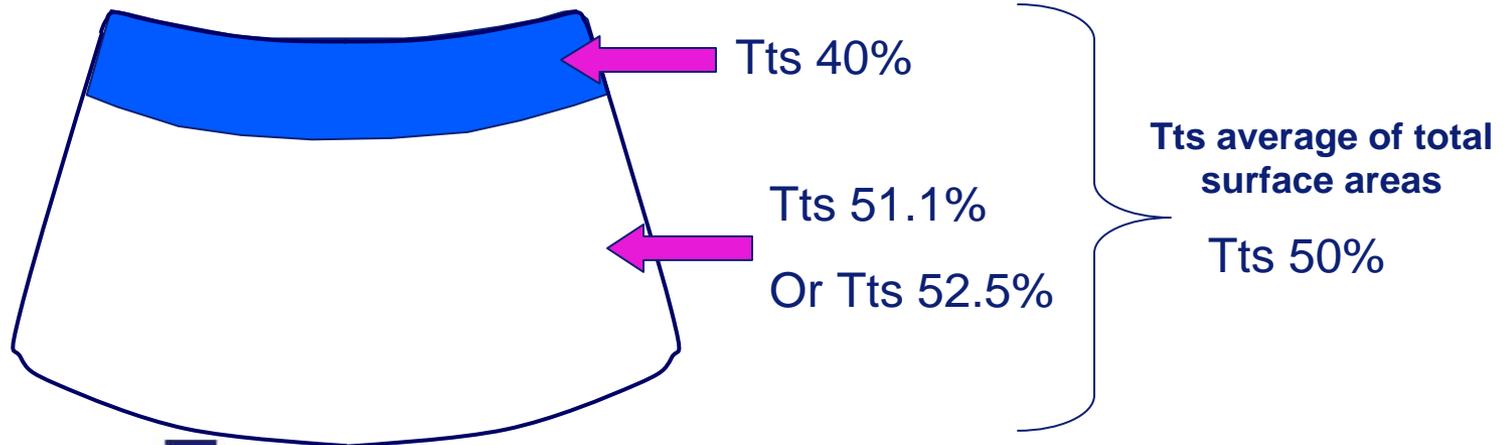


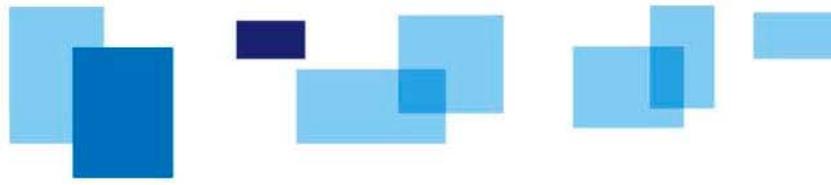
	Glazing type	Tts in deletion areas (with clear glass)	Deletion percentage	Tts of non deleted area	Tts average of total surface areas
Standard 1 (10% deletion per cool cars regulation)	Coated glass Coated PET	<b>81%</b>	<b>10%</b>	<b>50%</b>	<b>53.1%</b>
Example 1 (No deletion)	Absorption type	<b>0%</b>	<b>0%</b>	<b>53.1%</b>	<b>53.1%</b>
Standard 2 (5% deletion)	Coated glass Coated PET	<b>81%</b>	<b>5%</b>	<b>50%</b>	<b>51.5%</b>
Example 2 (No deletion)	Absorption type	<b>0%</b>	<b>0%</b>	<b>51.5%</b>	<b>51.5%</b>

# 1 . Tts regulation implementation proposal

Example- 2 : Inclusion of color band as solar management feature

	Percentage of color band area	Tts of color band area	Percentage of clear area	Tts of clear area	Tts average of total surface areas
Standard (Clear surface no color band )	0%	-	100%	50%	50.0%
Example 1 (With blue color band)	10%	40%	90%	51.1%	50.0%
Example 2 (With blue color band)	20%	40%	80%	52.5%	50.0%





## 2 . The equivalent performance of absorbing PVB in specific conditions

### ① Static condition

(parked from 1 to 4 hours)

### ② Driving condition

(including re-radiation properties with aid of wind)

### ③ Weather condition

(including cloudy vs. sunny day influence on performance)

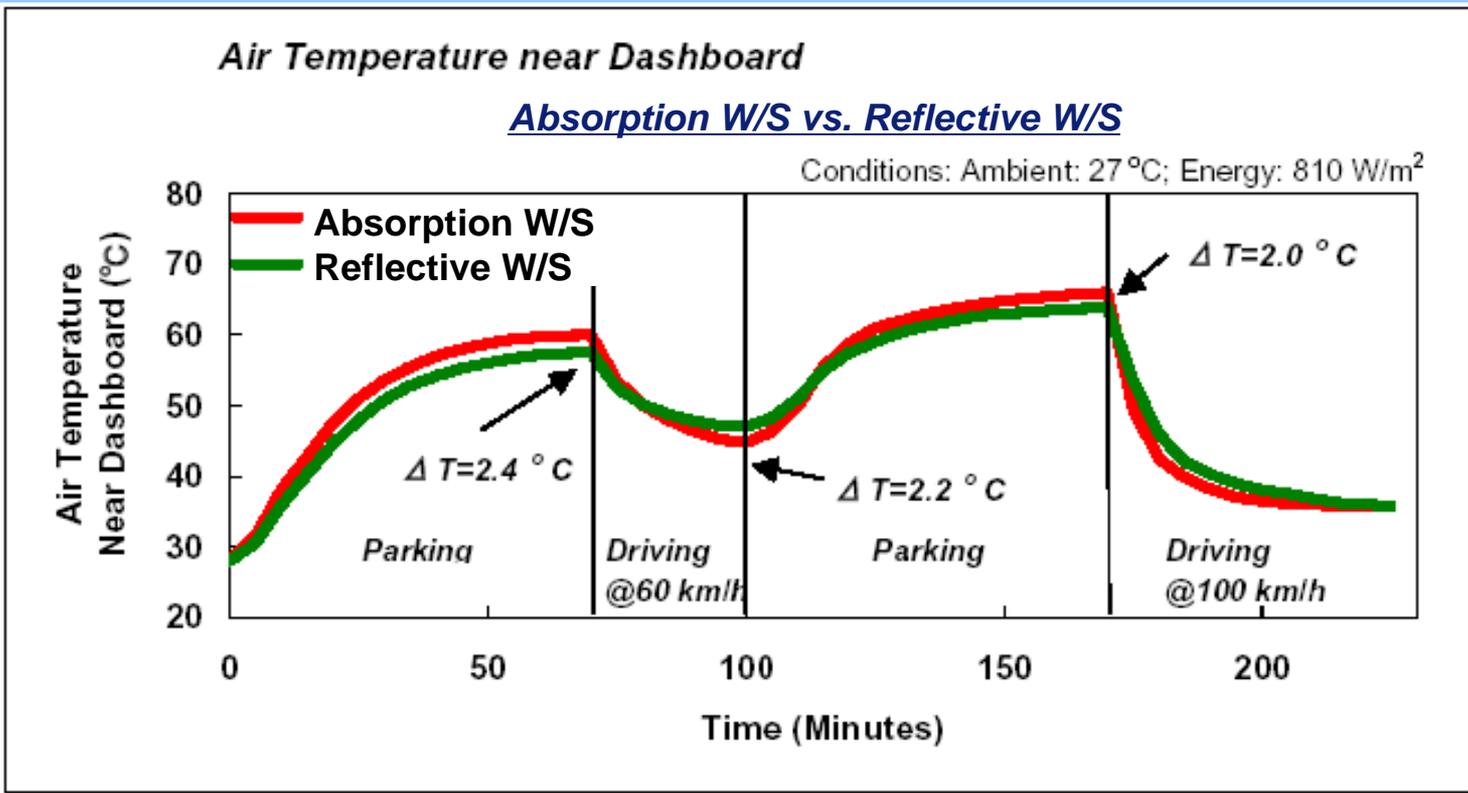


s-lec®

Leading technology, leading the way

# Static and driving condition as seen in over all performance

## In-Vehicle Test (Two identical cars (model/color) with different Windshields)



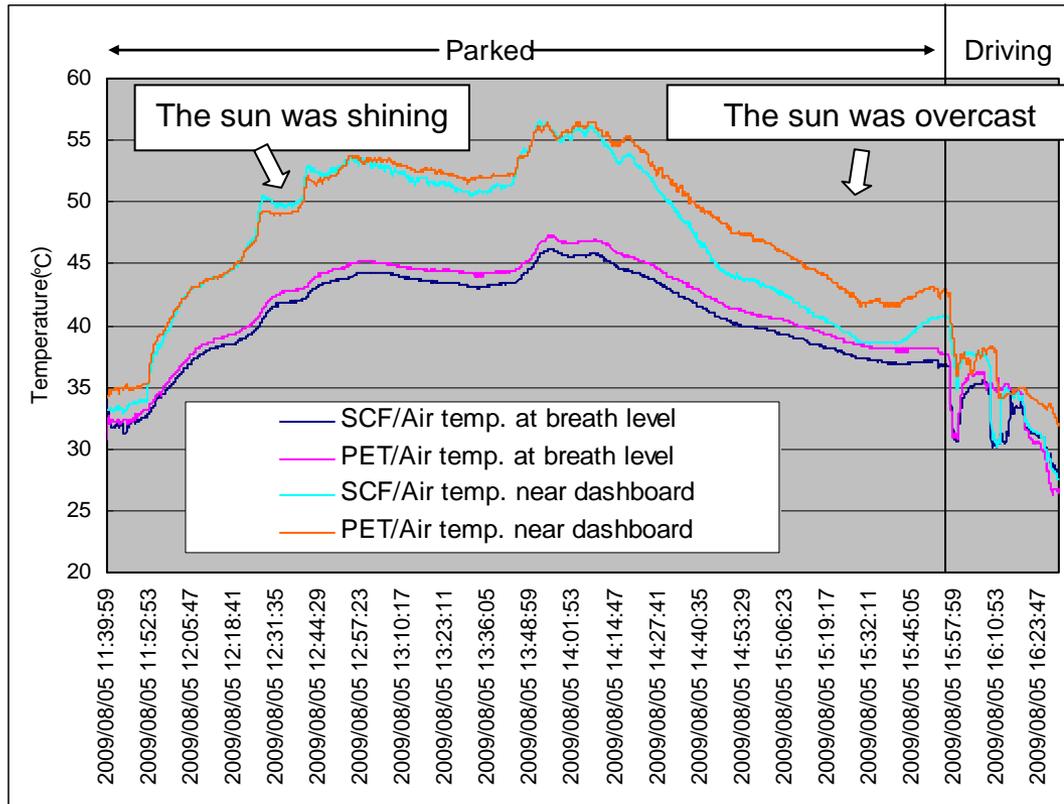
Absorption W/S can show equivalency when factoring driving condition into over all performance.



Leading technology, leading the way

# Weather condition influence upon over all performance

## Clear sky vs. overcast data and absorbing type equivalency



Absorbing type: Tts 55%  
Reflective type: Tts 49%

Even when parked, absorbing type displays some advantages.

For example, when the sun was overcast absorbing type displayed faster reduction of interior soak temperature due to re-radiation properties of absorbing PVB film.

# Temperature reduction with the aid of wind in the windows down model

Vehicle evaluation by rolling the windows down while driving in representative conditions

