



SOUND OUR STANDARDS

HOW DO WE MEASURE SOUND ABSORPTION?

When measuring sound absorption, we use a scale called 'reverberation time'. This is essentially the time it takes for the sound to fade away. The shorter the reverberation time, the better the sound absorption.

FR-ONE FABRICS ARE CERTIFIED WITH ISO 354

ISO 354 is a standard that specifies a method of measuring the sound absorption coefficient of acoustical materials used as wall or ceiling treatments, or the equivalent sound absorption area of objects, such as furniture, furnishing fabrics, and people in a reverberation room.

Following acoustic testing under ISO 354-11654, many of our fabrics have been classified as 'Extremely Absorbing'

SIGNIFICANT TERMS IN SOUND ABSORPTION

- NRC (Noise Reduction Coefficient): This is an average measure of how well a material absorbs sound at four different pitches (250, 500, 1000 and 2000 Hz). The rating goes from 1 (extremely absorbing) to 0 (reflecting).
- Weighted Sound Absorption Coefficient (α_w): This is determined through a series of calculations and tests involved with each frequency of sound. The result is a single-value rating that shows the material's overall sound absorption ability.
- Different frequencies of sound have different absorption rates, ranging from low (100 Hz) to high (5000 Hz) as per the standard EN ISO 354. The rating goes from 1 (extremely absorbing) to 0 (reflecting). The fabrics can also be categorised from A & B (extremely absorbing) to E and finally Not Classified when close to 0.

FR-One	Cat. Draped/ Flat	α_w	NRC
aditya	B/C	0,85	0,85
anunnaki	B/C	0,85	0,85
ashur	B/C	0,85	0,85
blockbuster	C/D	0,75	0,75
delis	D/D	0,55	0,45
gadolinium	C/D	0,60	0,65
galore	C/D	0,60	0,65
gaspeite	B/C	0,85	0,85
gatsby	C/D	0,60	0,55
gazillion	B/C	0,85	0,85
genial	C/D	0,55	0,45
ghazal	E	0,20	0,15
ghibli	B/C	0,85	0,85
gilda	B/C	0,80	0,85
gilgamesh	D	0,20	0,15
ginevra	C	0,60	0,65
gioia	C/D	0,60	0,65
girsu	D	0,20	0,15
gloria	B/C	0,80	0,85
golf	A/C	0,90	0,85
gosh	B/C	0,80	0,85
goshenite	B/C	0,85	0,85
gossy	E	0,15	0,10
gudea	D	0,20	0,15
gwendoline	C/D	0,60	0,65
houdini	B/C	0,80	0,75
jaba	E	0,15	0,10
jabberwocky	E	0,20	0,15

FR-One	Cat. Draped/ Flat	α_w	NRC
jaborine	C/D	0,60	0,55
jacadi	C/C	0,75	0,80
jacopo stripe	C/C	0,75	0,80
jadeite	C/C	0,65	0,70
jadore	C/D	0,70	0,70
jager	C/D	0,60	0,55
jaimie	C/D	0,60	0,55
jaipur	E	0,20	0,15
jasnone	E	0,15	0,10
jaxx	C/C	0,75	0,80
jedi	C/C	0,75	0,80
jermian	E	0,15	0,10
jest	C/D	0,60	0,55
jojoba	C/D	0,60	0,55
jorace	C/D	0,60	0,55
joyce	C/D	0,60	0,55
juleste	C/D	0,60	0,55
juniper	C/D	0,60	0,55
junko	C/C	0,75	0,80
labyrinth	C/D	0,75	0,75
laneway	C/D	0,75	0,75
latin	C/D	0,75	0,75
lexicon	D/E	0,40	0,35
liberate	C/D	0,60	0,60
lighten	E	0,25	0,25
lineal	E	0,15	0,10
lipova	C/D	0,75	0,75
liro	D/E	0,30	0,30

FR-One	Cat. Draped/ Flat	α_w	NRC
lively	E	0,15	0,10
loci	C	0,70	0,70
lola	B	0,80	0,70
lovable	E	0,15	0,10
lucidity	E	0,25	0,25
lucky	E	0,15	0,10
ludo	C/D	0,60	0,70
lupine	C/D	0,75	0,75
moon	B/C	0,65	0,60
mystery	B/C	0,80	0,75
obay	C	0,70	0,70
obduce	UC	0,10	0,10
objet	D	0,50	0,45
odeon	C	0,60	0,70
odette	E	0,15	0,15
odin	E	0,15	0,15
offa	UC	0,15	0,10
ombre	UC	0,10	0,10
opal	D	0,55	0,50
opelia	UC	0,10	0,10
opportune	D	0,55	0,50
optima	E	0,15	0,15
opulent	C	0,60	0,70
oracle	D	0,40	0,35
orb	E	0,15	0,15
ordain	D	0,55	0,50
ornate	D	0,55	0,50
oscillate	UC	0,10	0,10

FR-One	Cat. Draped/ Flat	α_w	NRC
oscine	E	0,15	0,15
osmic	C	0,70	0,70
ossimi	C	0,65	0,70
ouzo	C	0,65	0,70
oxidant	D	0,40	0,35
oxim	D	0,55	0,50
RE-Boot	C	0,75	0,70
RE-Delis	D	0,50	0,45
refined	UC	< 0,10	< 0,10
regalia	C	0,75	0,80
register	UC	< 0,10	< 0,10
RE-Juvenate	C	0,75	0,70
remain	C	0,75	0,70
RE-New	C	0,75	0,70
requiem	C	0,75	0,70
RE-Vive	C	0,70	0,70
riptide	A/C	0,90	0,85
sabik	C	0,75	0,65
saiph	C	0,75	0,65
savant	D	0,55	0,50
savvy	UC	0,10	0,10
sensuous	B	0,85	0,75
sestri	C	0,65	0,55
solunar	A	0,90	0,85
starlight	B	0,80	0,80
stylo	E	0,20	0,15
supra	B/C	0,85	0,80

OPTICAL & THERMAL OUR STANDARDS

FR-ONE SPELLBOUND DESIGNS ARE NOW TESTED TO EN 14501: EXPANDING OUR PERFORMANCE DATA TO OPTICAL & THERMAL INSULATION

In accordance with the European standard EN 14501, we test light, medium and dark colours in our new Spellbound sheers and dimout designs.

PROVIDING FACTUAL VALUES FOR THERMAL AND VISUAL COMFORT PERFORMANCE

Thermal and optical measurements are employed to evaluate how well fabrics protects against solar elements. The standard establishes comfort criteria for two aspects:

1. For thermal comfort, it considers the solar factor.
2. For visual comfort, it covers factors like; glare control, privacy at night, vision to the exterior (sight contact with the outside), light transmission degree, day light utilisation.

Performance is categorised into five levels:

- 0 - very little effect
- 1 - little effect
- 2 - moderate effect
- 3 - good effect
- 4 - very good effect

EN 14501 highlights the significance of the total solar factor, known as "gtot" (fabric + glass), for thermal comfort and the Tv value for visual comfort.

Spellbound Optical and Solar coefficients as per EN 14501

design	Savvy sheer			Stylo sheer			Solunar dimout			Starlight dimout		
colours	light	medium	dark	light	medium	dark	light	medium	dark	light	medium	dark
Tv (%)	0,507	0,427	0,426	0,489	0,428	0,251	0,003	0,001	0,000	0,003	0,000	0,000
Rv (%)	0,342	0,231	0,234	0,458	0,339	0,127	0,394	0,241	0,093	0,565	0,295	0,088
Av (%)	0,151	0,342	0,340	0,053	0,233	0,622	0,603	0,759	0,907	0,432	0,705	0,912
Tuv (%)	0,403	0,374	0,372	0,434	0,343	0,249	0,000	0,000	0,000	0,000	0,000	0,000
Te (%)	0,522	0,486	0,484	0,494	0,468	0,379	0,006	0,007	0,006	0,005	0,003	0,003
Re (%)	0,374	0,311	0,314	0,465	0,387	0,286	0,392	0,317	0,254	0,551	0,403	0,318
Ae (%)	0,104	0,203	0,202	0,041	0,145	0,335	0,602	0,676	0,740	0,444	0,594	0,679
Fc (0-1)	0,67	0,70	0,70	0,60	0,65	0,70	0,57	0,62	0,66	0,46	0,56	0,62
Gtot* (0-1)	0,57	0,60	0,60	0,51	0,55	0,60	0,48	0,53	0,56	0,39	0,48	0,53
Glare control	0	0	0	0	0	0	4	4	4	4	4	4
Privacy night	0	0	0	0	0	0	4	4	4	4	4	4
sight contact with the outside	2	2	2	2	2	3	0	0	0	0	0	0
Daylight utilisation	4	3	3	4	3	2	0	0	0	0	0	0

Tv: Visible light transmission
 Te: Solar transmission
 Re: Solar remission
 Ae: Solar absorption

Tuv: UV transmission
 Fc: Shading factor
 Gtot: value calculated for single glazing $g = 0.85$ | $U_g = 5.8 \text{ W/(m}^2\text{K)}$
 download from FR-One.com the full certificate for double/triple glazing values