FIRE Resistance Explanation Sheet

Fire resistance of a substance has been a delicate issue at building industry which has been particularly paid attantion to.

Compact laminates are applied especially at exterior cladding systems and interior areas and frequently metioned in EU rules and inspected by relevant autorities oand countries

There are some confusing describing names as seperated Reaction to Fire, Fire Resistance and Fire Protection.

Reaction to fire: The reaction to fire of a product is covering characteristics such as ignition, flame spread, heat release rate, smoke and gas production, occurrence of burning droplets and parts.

Fire Resistance: Fire resistance testing of technical textiles provides a measure of the ability of a construction element of separation element to guarantee the fire compartment concept when exposed to a fully developed fire for a specific time.. Fire resistance testing assesses integrity, insulation and stability of the construction.Classification is regulated in the EN 13501 series of standards.

Fire Protection: Fire protection includes areas such as detection, extinguishment systems, smoke and heat control, etc.

Fire Resistance classification according to TS EN 438

EN 438-3: Part 3: Classification and specifications for laminates less than 2 mm thick intended for bonding to supporting substrates

Annex A / Table A.1– Typical EN 13501-1 classifications of HPL composite panels in the field of building construction

Product Type	Typical EN 13501-1 classification
Composite panels comprising HPL type F bonded to non combustible substrates	B-s2,d0
Composite panels comprising HPL type F bonded to FR wood-based substrates	C-s2,d0
Composite panels comprising HPL type S or P bonded to non-FR wood-based substrates	D-s2,d0
NOTE Fire test performance will depend on laminate thickness and construction, substrate type and thickness, and adhesive used. It is advised to contact the laminate manufacturer for details of test reports and certifications held, and for information on fire test methods and specifications.	

EN 438-4 : Classification and specifications for compact laminates of thickness 2 mm and greater

Annex A / Table A.1 Typical EN 13501-1 classifications of Compact laminates in the field of building construction

Product Type	EN 13501-1 Classification
CGF ≥ 6mm thick	B-s2,d0
CGF < 6mm thick	C-s2,d0 or better
CGS	D-s2,d0 or better
NOTE It is advised to contact the laminate manufacturer for details of fire test reports and certifications held, and for information on fire test methods and specifications.	

EN 438-6 : Classification and specifications for Exterior-grade compact laminates of thickness 2 mm and greater

Annex A / Table A.1 : Typical EN 13501-1 classifications of Exterior-grade Compact laminates in the field of building construction

Product Type	EN 13501-1 Classification
EGF and EDF ≥ 6mm thick	B-s2,d0
EGF and EDF < 6mm thick	C-s2,d0 or better
EGS and EDS	D-s2,d0 or better
NOTE It is advised to contact the laminate manufacturer for details of fire test reports and certifications held, and for information on fire test methods and specifications.	

What norms have been use for GENTAŞ products and what are the classifications for that?

EN 13801-1 Fire Classification of Construction Products and Building Elements-Part 1: Classification Using Test Data from Reaction to Fire Tests.

G-Fire CGF
3.0 ≤ t < 5.9 mm / B S2 d0 required value B S2 d0
6.0 ≤ t < 25.0 mm / B S1 d0 required value B S2 d0

G-Com CGS
3.0 ≤ t < 6.0 mm / D s1 d0 required value D s2 d0 or better
6.0 ≤ t < 8 mm / D s1 d0 required value D s2 d0 or better
8 ≤ t < 10 mm / C s1 d0 required value D s2 d0 or better
12 ≤ t < 25.0 mm / B s1 d0 required value D s2 d0 or better

G-Lam HGS/VGS CPL; Laminated to Calcium Silicate Board (non-combustible / A Class)
0,9 mm and above / B s1 d0 , required value C s2 d0

İmportant note It is highly recommended to use for bonding element flame retardant adhesive and non-combustible (A class) core material such as Calcium Silicate. Fire retardant chipboard or MDF can not reach B class according to EN 13501-1

G-Lam HGF/VGF HPL; Laminated to Calcium Silicate Board (non-combustible / A Class)
0,6 mm / B s1 d0 required value C s2 d0

İmportant note: It is highly recommended to use for bonding element flame retardant adhesive and non-combustible (A class) core material such as Calcium Silicate. Fire retardant chipboard or MDF can not reach B class according to EN 13501-1

G-Bio CGF
10 mm / B s1 d0 required value B s2 d0

G-Com UV+ EDF
4.0 ≤ t < 5.9 mm / B S2 d0 required value C s2 d0
6.0 ≤ t < 10.0 mm / B S1 d0 required value B s2 d0

G-Com UV+ EDS
4.0 ≤ t < 5.9 mm / D S2 d0 required value D s2 d0
6.0 ≤ t < 10.0 mm / C S1 d0 required value D s2 d0

G-Lab CGF
10 mm / B S1 d0 required value B s2 d0

G-Solo
1,0 ≤ t ≤ 3 mm / C S2 d0 required value C s2 d0
6 mm / B s2 d 0 required value B S2 d0
8 mm / B s1 d0 required value B S2 d0

ZERO PST CGF
6.0 ≤ t < 10.0 mm / B S1 d0 required value B s2 d0

BOWLING CGF
10.0 mm / B S2 d0 required value B s2 d0

G-Skate CGF
4.0 ≤ t < 10.0 mm / B s1 d0 required value B s2 d0

G-Skate CGS
4.0 ≤ t < 10.0 mm / C s2 d0 required value B s2 d0

ASTM E 84 - 10 Standard Test Method for Surface Burning Characteristics of Building Materials

G-Com CGS
15 mm / Class A / required value Class A

G-Fire CGF
6 mm -10 mm – 13 mm / Class A / required value Class A

G-Ext EDF
6-10 mm / Class A / required value Class A

G-Com UV+ EDF
Class A / required value Class A

BOWLING CGF
10 mm / Class A / required value Class A

G-Skate CGF
4.0 ≤ t < 10.0 mm / Class A required value Class A

G-Skate CGS
4.0 ≤ t < 10.0 mm / Class B required value Class B

BS 476 PART 7 Fire Tests on Building Materials and Structures ; Methods of Test to Determine the Classification of the Surface of Flame of Products

G - Lam HGF
0,8 mm / Class 1 / required value Class 1

NF P 92 501 Fire Test to Building Material (M Rating) – French Standard

G-Fire CGF
6- 10 mm / M1 required value M1

DIN 5510-2 Preventive Fire Protection in Railway Vehicles – Part 2 : Fire Behaviour and Fire Side Effects of Materials and Parts – Classificaton , requirements and Test Methods

G-Fire CGF
0.8 mm / S4 ; SR2 ; ST2
1.2 mm / S2 ; SR2 ; St2

G-Com UV+ EDF
0.8 mm / S4 ; SR2 ; ST2
1.2 mm / S2 ; SR2 ; St2

G-Ext EDF
0.8 mm / S4 ; SR2 ; ST2
1.2 mm / S2 ; SR2 ; ST2

CEN/TS 45545-2-2010 Railway Applications – Fire Protection on Railway Vehicles – Part 2 : Requirements for Fire Behaviour of Materials and Components

G-FİRE CGF
1,2 mm / R1 ; HL2
4 mm / R1/R7 ; HL1-HL2-HL3
8 mm / R1 ; HL2

ECE-R 118.02 annex 6 Test to Determine the Horizontol Burning Rate of Material

G-COM CGS
6 mm / Horizontal burning rate 0 mm/min requested value Horizontal burning rate Max. 100 mm/min

G-FİRE CGF
t ≥ 2.5 mm / Horizontal burning rate 0 mm/min requested value Horizontal burning rate Max. 100 mm/min

t ≥ 6 mm / Horizontal burning rate 0 mm/min requested value Horizontal burning rate Max. 100 mm/min

ECE-R 118.02 annex 7 Test to Determine the Melting Behavior of Materials

G-COM CGS
6 mm / Material has not dropped and cotton wool is not inflamed requested value
Material will not drop and cotton wool will not inflamed

G-FİRE CGF
t ≥ 2.5 mm / Material has not dropped and cotton wool is not inflamed requested value
Material will not drop and cotton wool will not inflamed

t ≥ 6 mm / Material has not dropped and cotton wool is not inflamed requested value
Material will not drop and cotton wool will not inflamed

ECE-R 118.02 annex 8 Test to Determine the Vertical Burning Speed of Materials

G-COM CGS
6 mm / Vertical burning rate 0 mm/min requested value Vertical burning rate
Max. 100 mm/min

G-FİRE CGF
t ≥ 2.5 mm / Vertical burning rate 0 mm/min requested value Vertical burning rate
Max. 100 mm/min

t ≥ 6 mm / Vertical burning rate 0 mm/min requested value Vertical burning rate
Max. 100 mm/min