

“Controls smoke and harmful gasses without spreading Fire”

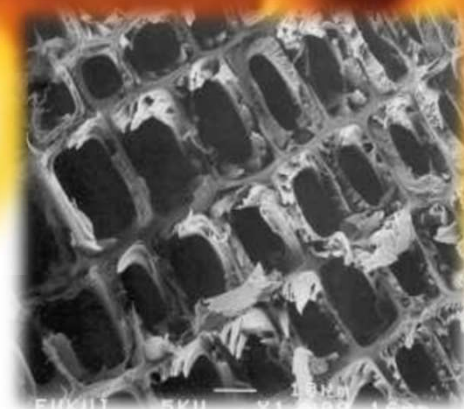


“Cell+funen” is a coined word from “Cellulose” & “Funen(Incombustibility in Japanese)”
And is the world’s very unique technology that makes woods “WON’T BURN” and
“WON’T CREATE GASSES”

The solid component of CELL+FUNEN liquid melts at 110°C (230°F), which is lower than the ignition point of woods, and does coat the Cellulose inside.

Very unique and patented technology and know-how on tuning of the liquid to impregnate upon the variation of materials, and on creating them into various products.

Micrograph picture:
The Liquid component is firmly being fixed
in the cellulose structure



Products Applications

Non-Combustible Laminates

- Plywoods, LVL
- Structural materials: column, beam, stairs
- Compressed woods
- Heat Insulation woods
- Interior woods
- Special materials
- Others

Non-Combustible Woods

- Interior materials: wall, ceiling, etc.
- Cladding: louver, exterior wall, etc.
- Special materials
- Structural materials
- Wood for fittings: fire door, etc.
- Others

Non-Combustible Cloth

- Fire proof cloth
- Fire protection clothing
- Curtain
- Automobile seats
- Felt cloth
- Others

CELL+FUNEN

®

Non-Combustible Liquid

Technology + Know-How
(main components: Boric Acid & Borax)

Non-Combustible Wood Flour

- Clay wall substitute
- Window, Sash, Doors, etc.
- Plastic materials
- Combined with Aluminum/Steel materials
- Others

Non-Combustible Treatments

- <Fossil fuel oriented materials>
- Electric wiring
- Cushions
- Hoses
- <Quick fire proof treatments>
- Tatami, Fusuma, Shouji
- Woven cloth
- Others

Non-Combustible Paper

- Heat insulation
- Interior materials
- Partition, Wall materials
- Special forming materials
- Structural materials
- Fire proof cardboard
- Furnitures, Fittings
- Plaster board substitutes
- Others

Applicable Markets

*Historic Wooden Building

Temple
Shrine
Castle

*Public Wooden Building

*High-rise Wooden Building

*Metropolitan Disaster Prevention

*Hotel

*Airplane

*Ship Vessels

*Automobile

*Forest Fire Prevention

Wood=about 80% CO₂ reduction thru production process
Paper=about 50% CO₂ reduction

“Creating new Safe & Secure living spaces, and contributing to CO₂ Reduction in environment!”

[2 hour fire resistant structural member comparison test]

Untreated material vs. "Cell+Funen" material

<Before Experiment>

Non-processing LVL



Cell+Funen processed LVL

<During Experiment>

Burning
Generating
Smoke & Gas



Not burning

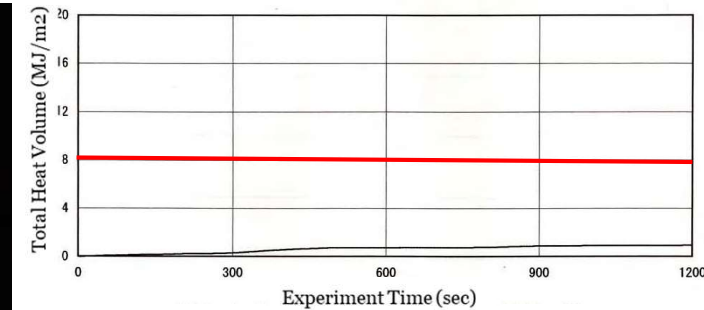
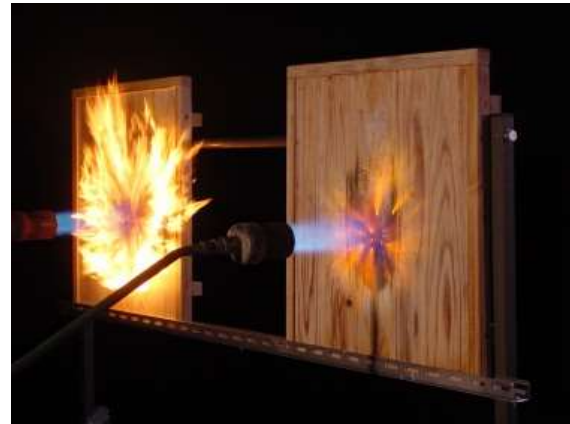
<After Experiment>

Has become
Ash



Carbonized

[Interior material flat plate combustion comparison test]



Corn-calory meter test

(Japanese Building Standard Law "Noncombustible material" Certification).

(Standard Testing Time 20 minutes, Keep total heat value less than 8 mj/m2 required)

Ministry of Land, Infrastructure, Transport, and Tourism (**MLITT**) Certification
Number = FPI20CN-0543

Joint-developed with Nippon Steel Engineering, Nikken Sekkei Ltd., Prof. Kobayashi (Keio Univ)

MLITT Certification Number= NM3841, & others.

for special process for White Powdering prevention & aging performance maintenance

Japan Railway vehicle & machinery Association Certification for Non combustibility.

[Other combustion comparison tests]

Urethane Foam



Cell+Funen

Dried Leaves



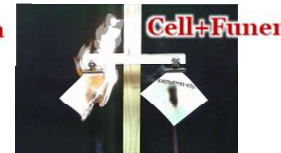
Cell+Funen

Wall Paper



Cell+Funen

Cotton Cloth



Cell+Funen

Paint Processed Wood



Cell+Funen

CELL+FUNEN Noncombustible Wood (Japanese Cedar) Performance			
Item	Test Standard	CELL+FUNEN Noncombustible Wood	Untreated Wood
Density	Own Investigation	0.5~0.7 g/cm3	0.24~0.4 g/cm3
Thermal Conductivity	Rapid Thermal Conductivity Meter	0.1793 ± 0.0223	0.1172 ± 0.0039
Compressive Strength	JIS Z 2101	Average 36.7 N/mm2 Standard Deviation 4.2	Average 34.3 N/mm2
Bending Strength	JIS Z 2102	Average 62.0 N/mm2 Standard Deviation 12.3	Average 63.7 N/mm2
Young's Modulus	JIS Z 2102	Average 9.27 kN/mm2 Standard Deviation 0.63	Average 7.35 N/mm2
Tensile Strength	JIS Z 2103	Average 69.2 N/mm2 Standard Deviation 13.2	Average 88.3 N/mm2
Dimensional Stability Observation	External	Conforming to JIS A 1437	No Cracks Due to Experiment
	Mass Change Length Change Width Change Thickness	About 0.24 % About 0.02 % About 0.13 % About 0.40 %	No Cracks Due to Experiment About 0.26 % About 0.02 % About 0.08 % About 0.25 %
Change	Crack Bow Cup	None None No Warp Due to Experiment	None None No Warp Due to Experiment
Iron Corrosion	Mass Decrease of Nails	JIS K 1571	About 0.33 %
Weather Resistance	JIS K 5600-7-7 No Wet Cycle Outdoor Exposure	Same with Regular Wood Testing Time : 500hours Bad Outdoor Weather Resistance in terms of Drug Leaching	
Combustibility	Pyrogenicity Gas Venomousness	Japan Testing Center for Construction Materials	Noncombustible Pass Noncombustible Pass
Venomousness	Acute Oral Toxicity Acute Dermal Toxicity Momentary Skin	Conforming to OECD Guideline	No Examples of Death LD50 : 2,000mg/kg and over Weak Irritancy
Irritation	Eye Irritation Mutagenicity Skin Sensitization		Negative Minimum Sensitization Provocative Concentration 50w/v%
Air Environmental Pollution	JIS A 5905	Formaldehyde Undetected	Formaldehyde Undetected
Mildew Proofing	JIS Z 2911	Effectiveness Confirmed	

[Our Works Examples]



Non combustible Clay Wall
(wood floor)

Authorized by Government MLITT:
NM-3138

(Classic Japanese Resident)



Non combustible Fiber

Authorized by Government MLITT:
NM-1783

**(Exclusive jewelry shop in
Peninsula Tokyo hotel)**



Non combustible Wood Works

Authorized by Government MLITT:
NM-0692

**(Narita International Airport
Terminal 1)**



Non combustible “Washi”
(Japanese traditional paper)

Authorized by Government MLITT:
NM-0996

**(Suntory Art Museum,
Roppongi Tokyo)**

[Prizes & Evaluation]

Obtained the first Noncombustible Wood public certification in Japan.

Nikkei BP Technology Award.

Government Forestry Agency Director-General's Award.

(Wood utilization Technology Development Award).

JIPA (Japan Federation of Interior Planner's Association) New Technology Award.

Fukui Prefecture Technology Encouragement Award

HIPA (Hokuriku Interior Planner's Association) Incentive Award.

(for more Safe and Secure interior building materials).

Certified as “Kouto Brand” (one of the most eminent regional product)
in Kouto Ward, Tokyo Metropolitan

**Selected as one of
“New Japanese 100 Styles”
Product**

Supported by
Ministry of Economy, Trade and Industry



「新日本様式」



[Media Coverage]

Ministry of Foreign Affairs (Web site & DVD distribution),
Overseas News in 6 languages

NHK (public broadcast like BBC) News: Domestic Nationwide/ International / Radio
Popular TV Programs

-TV Tokyo “WBS (World Business Satellite)”

-Fuji TV. “Super News”

-TBS “Yume no Tobira+ (Dream Door)”

-BS Japan “Asian Wind”.

“Nikkei” major nationwide Newspaper

“The Nikkan Kensetsu Kougyo” construction business paper

Major Business Magazines

-“Nikkei Home Builder”

-“Mirai Zairyo (Future Materials)”

-“Rikuu”

-“Goethe”

-And other various Housing Magazines

-Japan Chamber of Commerce Bulletines

-“Zipang” journal (for local governments)