



## **Product Data Sheet for *VIVIX*® by Formica Group**

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High Pressure Laminates (HPL)

## **Preface**

This information describes the composition of *VIVIX*<sup>®</sup> HPL and gives advice for their handling, processing, use and disposal. It covers all *VIVIX* HPL grades as detailed in *VIVIX* sales promotion materials. HPL are not classified as hazardous substances and therefore they do not require a special marking nor a description by a safety data sheet.

## **Contents**

- 1.** Description
- 2.** Storage and Transportation
- 3.** Handling and Machining of *VIVIX* HPL
- 4.** Environmental and Health Aspects in Use
- 5.** Maintenance
- 6.** *VIVIX* HPL in Fire Situations
- 7.** Energy Recovery
- 8.** Waste Disposal
- 9.** Technical Data

## 1. Description

The materials referred to are high pressure decorative laminates (HPL) according to the European Standard EN 438-6.

*VIVIX*® HPL are sheets consisting of layers of cellulose fibrous material (normally paper) impregnated with thermosetting resins and bonded together in a high pressure process. The process, defined as a simultaneous application of heat ( $\geq 120^{\circ}\text{C}$ ) and high specific pressure ( $\geq 5\text{ MPa}$ ), provides flowing and subsequent curing of the thermosetting resins to obtain a homogenous non-porous material ( $\geq 1,35\text{ g/cm}^3$ ) with the required surface finish.

Basically more than 60% of the *VIVIX* HPL consists of paper and the remaining 30 to 40% consists of cured phenol-formaldehyde resin for core layers and melamine-formaldehyde resin for the surface layer.

Both resins belonging to the group of thermosetting resins are irreversibly interreacted through cross linked chemical bonds formed during the curing process producing a non-reactive, stable material with characteristics which are totally different from those of its component parts.

*VIVIX* HPL are supplied in sheet form in a variety of sizes and thicknesses.

Where improved fire retardance is required, the laminate core may be treated with an additive which does not contain halogens.

## 2. Storage and Transportation

Storage and transportation should be carried out in accordance with the published *VIVIX* by Formica Group Technical and Fabrication Information and User Guide; no special precautions need to be taken.

For transportation, *VIVIX* HPL are classified as a nonhazardous product; no labelling is required.

## 3. Handling and Machining of *VIVIX* HPL

The usual safety requirements of fabrication and machining should be observed with regard to dust extraction, dust collection, and fire precautions.

Because of the possibility of sharp edges protective gloves should always be worn when handling *VIVIX* laminates.

The contact with dust from *VIVIX* HPL does not present any special problems, however a small percentage of personnel may be sensitive or even allergic to machining dust in general.

## 4. Environmental and Health Aspects in Use

*VIVIX* HPL are cured and therefore chemically inert.

*VIVIX* HPL formaldehyde emission level is far below the limit for wood based materials.

VIVIX® HPL is an article and not a chemical substance and therefore REACH does not apply. Nevertheless it is important to ensure an information exchange with the raw material suppliers on REACH relevant substance properties.

## 5. Maintenance

As VIVIX HPL do not suffer from corrosion and oxidation, they do not need any further surface protection (lacquers or paints).

## 6. Vivix HPL in Fire Situations

VIVIX laminates are difficult to ignite and have properties that retard “spread of flame”, thus prolonging evacuating time.

Due to incomplete burning, as with many organic materials, hazardous substances are to be found in the smoke. However, VIVIX HPL are capable of meeting the best performance for organic surfacing materials specified in the French standard NFF 16101 (= at least class F2 for smoke density and toxicity).

In dealing with fires involving VIVIX laminates the same fire fighting techniques should be employed as with other wood based building materials.

## 7. Energy Recovery

On account of their high calorific value (18 20 MJ/kg)\*<sup>1</sup> VIVIX HPL are ideal for thermal recycling. When burnt completely at 700 °C, VIVIX HPL produce water, carbon dioxide and oxides of nitrogen. Therefore VIVIX HPL comply e.g. with paragraph 6 of the economic law of circular flow (Kreislaufwirtschaftsgesetz).

Well controlled burning processes are achieved in modern, officially approved industrial incinerators. Ashes of this process can be brought to controlled waste disposal sites.

## 8. Waste Disposal

VIVIX HPL can be brought to controlled waste disposal sites according to current national and/or regional regulations.

## 9. Technical Data

<b>9.1. Physical/chemical characteristics</b>	Solid sheets
9.1.2. Density	≥ 1,35 g/cm <sup>3</sup>
9.1.3. Solubility	Insoluble in water, oil, methanol, diethyl ether, noctanol, acetone

<sup>1</sup>For comparison: Calorific value of fuel oil: 39 42 MJ/kg, of hard coal: 28 31 MJ/kg

9.1.4. Boiling point	None
9.1.5. Evaporation rate	None
9.1.6. Melting point	VIVIX® HPL do not melt
9.1.7. Calorific value	18 20 MJ/kg
9.1.8. Heavy Metals	VIVIX HPL do not contain toxic compounds of antimony, Heavy metals, barium, cadmium, chromium <sup>III</sup> , chromium <sup>VI</sup> , lead, mercury, selenium.

## 9.2. Stability and reactivity data

9.2.1. Stability	VIVIX HPL are stable; they are not considered to be reactive or corrosive.
9.2.2. Hazardous reactions	None
9.2.3. Material incompatibility	Acid and alkaline solutions will stain the surface

## 9.3. Fire and explosion data

9.3.1. Ignition temperature	Approx. 400°C
9.3.2. Flash point	None
9.3.3. Thermal decomposition	Possible above 250°C. Depending on the burning conditions (temperature, amount of oxygen, etc.) toxic gases may be emitted, e. g. carbon monoxide, carbon dioxide, ammonia.  VIVIX HPL are classified safe when tested according to NF F 16 101
9.3.4. Smoke and Toxicity	VIVIX HPL are classified F2 when tested according NF F 16 101.
9.3.5. Flammability	VIVIX HPL are not considered to be flammable. They will burn only in a fire situation, in presence of open flames.
9.3.6. Extinguishing media	VIVIX HPL are considered as class A material. Carbon dioxide, water spray, dry chemical foam can be used to extinguish flames. Water dampens and prevents rekindling. Persons in fire situations should wear self breathing apparatus and fire protective clothing.
9.3.7. Explosion hazards	The machining, sawing, sanding and routing of HPL produce class ST1 dust. Safety precautions and

	adequate ventilation must be observed to avoid airborne dust concentration.
9.3.8. Explosion limits	Dust levels should be kept below 60 mg/m <sup>3</sup>
9.3.9. Protection against explosion and fire	In the case of fire, VIVIX® HPL shall be treated as wood based materials.
<b>9.4. Electrostatic behaviour</b>	It minimizes the generation of charge by contact-separation or rubbing with another material. It does not need to be earthed. Surface resistivity is between 10 <sup>9</sup> – 10 <sup>12</sup> ohms and a chargeability of V ≤ 2 kV according to CEI IEC 61340-4-1 so that VIVIX HPL are considered as antistatic material.
<b>9.5. Storage and transport</b>	VIVIX HPL are classified as non-hazardous for transportation purposes and there are no specific requirements.
<b>9.6. Machining</b>	Use gloves to protect from sharp edges and safety glasses to prevent eye injuries. No special working equipment is necessary, except protection to minimize dust exposure in case of sheet machining.
<b>9.7. Disposal considerations</b>	Waste material should be handled according to local regulations. Burning is permitted in approved industrial incinerators.
<b>9.8. Health information</b>	VIVIX HPL are not considered to be dangerous for humans and animals. There is no evidence of VIVIX HPL toxicological effects and eco-toxicity. VIVIX HPL surfaces are physiologically safe and approved for use in contact with foodstuffs according to EN 1186.
9.8.1. Working areas	General dust regulations are applicable.
9.8.2. Formaldehyde emission	< 0.4 mg/h m <sub>2</sub> (tested according to EN 717-2) < 0.05 ppm (tested according to EN 717-1 (WKI chamber method))
9.8.3. Pentachlorophenol	VIVIX® HPL do not contain PCP (Pentachlorophenol).

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This data sheet is designed to give you important information about *VIVIX*® by Formica Group product and the fact that *VIVIX* product complies with EN438:2005. The statement as to industry standard compliance is accurate and whilst we make reasonable efforts to ensure that the other statements in this data sheet are accurate, this cannot be guaranteed and no condition or warranty to this effect shall be implied.

The goods will be provided in accordance with the contract in place between Formica Group and the purchaser. We will not be liable for any loss or damage caused directly or indirectly from any failure of the goods to comply with this data sheet, except in regard of death or personal injury caused by our negligence.

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