

GREEN FLAME

Retardants for fire safety

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THE PROBLEM

13%

rise of global fires
since 2019

3,500

killed annually
in Europe since 2019

70000

at least injured
in Europe since 2019

\$ 76 billion

Global financial
losses 12 % GDP



TOXICITY

Halogenated flame retardants
(FR) accumulate in
human bodies and nature.



STANDARDS

Halogenated FR face **restrictions**
by **REACH , RoHS , POPs**
and other directives



APPLICATIONS

Halogenated FR are **not applicable** to all polymers and
porous materials.

Treated materials **lose strength**
and quality.

OUR SOLUTION

100 %

WIDE RANGE
OF POLYMERS

ABSORPTION
IN FEW SECONDS

Hydrophobic
and hydrophilic

Hydrophobic
and hydrophilic

Any physical and
chemical properties
and structure

High efficiency
to retard
flammability

High efficiency
to retard
flammability

GREEN SOLUTION



OUR COMPETITIVE ADVANTAGES

Applicable for **liquid extinguishers, sprinklers and to combat wild fires**

Non toxic and biodegradable in nature/ landfills

Patent protected in USA and EU

Fire protection of porous polymeric materials

DIY kits for home application

Certified product



GREEN FLAME

Retardants for fire safety



Textile



Furniture



Leather



Wadding



Paper & Cardboard

OUR APPLICATIONS



Polystyrene



Polyurethanes



Sprinklers



Wild Fires

COMPETITIVE ADVANTAGES APPLICATIONS



Application



Textile



Furniture



Leather



Wadding



Wooden Houses



Paper & Cardboard



Polystyrene



Polyurethanes



Sprinklers



Wild Fires

FLAME RETARDANT IMPREGNATION TECHNOLOGIES

Techniques



Soak



Brush



Spray



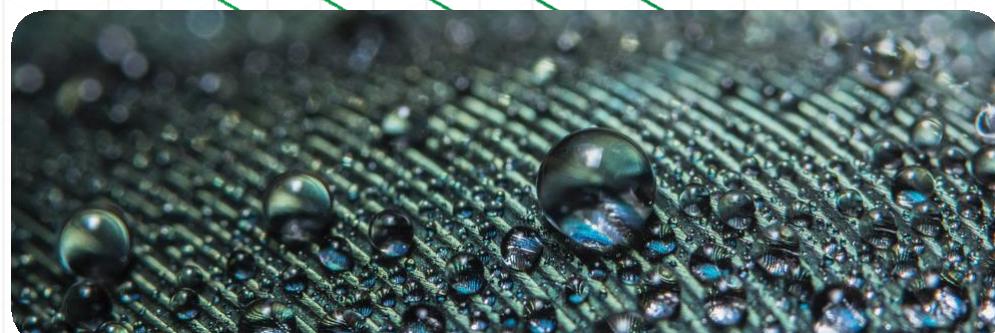
Padding



Immerse



Roll



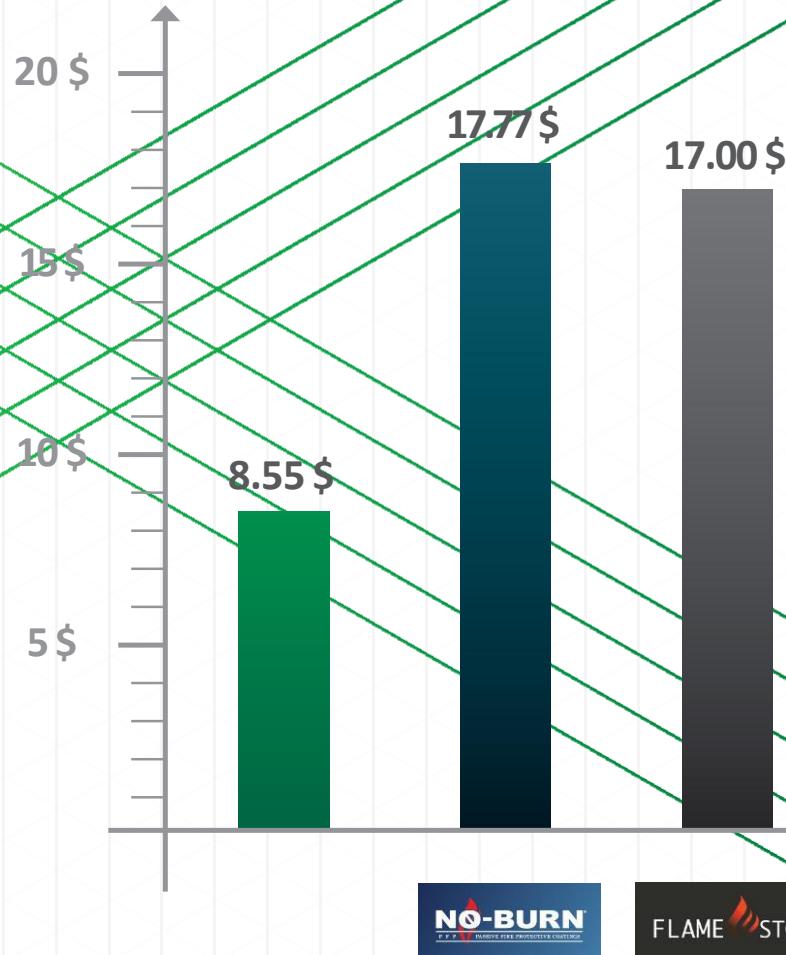
Plasma aided impregnation

COMPETITIVE ADVANTAGES

Techniques



Price/liter



GLOBAL FLAME RETARDANTS MARKET

3,5
millions tons
per year (2020)

10
billions USD
per year (2020)

CONSTRUCTION



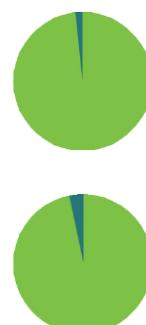
30% of global
demand
(foams, rubber, paint, adhe-
sives, varnishes etc.)

AUTOMOTIVE



Highest growth
by 2024
(wires, cables, etc.)

ELECTRONICS



6,4 % EU
12 % North
America

Use of brominated FR

WILD FIRE, DIY KITS

Free niche!

GLOBAL CHEMICAL REGULATIONS (CURRENT & EMERGING)

CANADA

1. Canada Consumer Product Safety Act (CCPSA)
2. Chemical Risk Assessment

USA

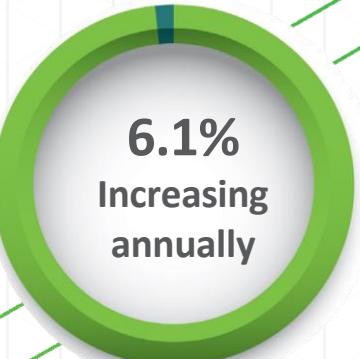
1. Family and Fire Fighter Protection Law
2. Federal Hazardous Substances Act (FHSA)

GLOBAL MARKET of FR is determined by the national and international regulations



EUROPE

1. REACH Regulation
2. CPL Regulation
3. Ecodesign for Sustainable Products Regulation
4. Construction Products Regulation



6.1%
Increasing
annually

In respect to the Global Market regulations **FR production** is increasing annually with 6.1%.

GREEN FLAME

Patent protected
in USA and EU



5,8
billions USD
profit

Global market profit: 5,8 billions USD, 2018

COMPETITIVE ADVANTAGES

Application

Combat wild fires

Sprinklers

Liquid extinguishers

Hydrophilic and hydrophobic polymers

Wood

Paper & Cardboard

Corrugated board

Leather

Polystyrene

Polyurethanes

Price/liter

20 \$

15 \$

10 \$

5 \$

8.55 \$

17.77 \$

17.00 \$



THANK YOU



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