FIRE RETARDANT LATEX FLAT PAINT
5048

muralo Technical Data

Fire Retardant Latex Flat Paint

Description:

An intumescent type, Class-A rated fire retardant coating specially designed to protect and decorate flammable and non-flammable surfaces. When subjected to open flame or high heat, it forms a protective blanket between the fire and the substrate which impedes the propagation of flames and insulates the surface from the high heats that cause structural collapse and spontaneous combustion. Thus, it provides extra time needed to reach safety. Muralo's Fire Retardant Latex Flat Paint has been independently tested and certified by Underwriter's Laboratories Inc., in accordance with the requirements of Fire Hazard Classification of Building Materials. Its advanced formula offers high quality, high hiding, excellent washability, and above all reliability. It is suitable for use on all interior surfaces. Dries in approximately one hour to an attractive matte finish.

Recommended Uses:

Use on all previously painted or unpainted, new and old, interior surfaces such as corridors, halls and entrance areas of homes, schools, hospitals and public buildings.

Surface Preparation:

All surfaces must be clean and free from dirt, dust, grease, oil or peeling paint. A white powdery deposit (efflorescence) often found on masonry surfaces, should be completely removed with a stiff wire brush. Repair cracks and other imperfections with Spackle®. For large holes in plaster, use Muralo Patching Plaster. To repair masonry, use Muralo Sta-Patch.

New Or Unpainted Surfaces: Priming is not required for wallboard, aluminum, copper or masonry substrates. New wood should be primed with Muralo Alkyd Primer Sealer #567 to prevent tannin staining. Rusting metal should be primed with a rust inhibiting primer.

Previously Painted Surfaces: Previously painted surfaces in sound condition do not require priming. Dull glossy areas by light sanding.

Flash Point:

None.

Freeze-Thaw:

Passes 3 cycles.

Fire Hazard Classification:

(Based on 100 for untreated red oak).

Flame Spread	Fuel Contributed	Smoke Developed	Number of coats	Coverage Sq. Ft. per Gallon
15	0	20	2	200

[redacted]

Pigment* = 9.2%

Titanium Dioxide	6.9%
Silicates	2.3%

Vehicle* = 90.8%

Vinyl Acetate/Acrylic Resin	13.8%
Melamine Resin	7.3%
Dipentaerythritol	6.9%
Water	38.9%

Active Ingredient*

Ammonium Phosphate	23.9%
	100.0%

Packaging:

	Per Case	Approx. Wgt.
5 Gals.	1	53 lbs.
Gals.	4	45 lbs.

#T1500

Cautions: Keep out of reach of children. Avoid prolonged contact with skin or breathing of spray mist. Close container after each use. Do not take internally. Use adequate ventilation. Keep from freezing. Do not apply when temperature is below 50°F.

Application: For best results, use:

Brush: Any good quality bristle brush.

Roller: 3/8 to 1/2 inch nap roller cover give best results.

Spray: For conventional air atomized spraying, excellent results are obtained with air nozzle orifices sizes from 0.04 to 0.07 inches and pressures from 30 to 70 psi. The fluid nozzle orifice size should be 0.07 to 0.11 inches.

For airless spraying, excellent results are obtained with an orifice size of 0.018 to 0.021 inches. Spray width may range from 4 to 19 inches at a 12 inch distance. For best results, use equipment manufacturer's recommendations.

Finish: Flat. 60° Gloss = Less than 2.

Colors: White.

Viscosity: 85-95 KU.

Weight Per Gallon: 9.8-10.2 lbs. per gallon.

Coverage: One coat at 100 Sq. Ft. per gallon or two coats, each at 200 Sq. Ft. per gallon, required for Class-A rating.

Spreading Rate: One gallon covers approximately 150-250 Sq. Ft. Porous or textured surfaces will reduce the spreading rate.

Dry Time: Dries in 1 hour under normal conditions. High humidity and low temperature may increase dry time. Can be recoated in 2-3 hours.

Thinning: Not recommended. If necessary, up to 1/2 pint of water per gallon may be added.

Architects Specifications: Surfaces noted in the accompanying schedule, after receiving the proper prepainting treatment described, shall be finished with one or two coats of (specify number of coats and colors) Muralo Fire Retardant Latex Flat Paint.

It shall be delivered in the original unopened cans and applied in accordance with directions furnished by the Muralo Company, Inc., manufacturers of this paint and whose directions are made a part of these specifications.

[redacted]

JRG, INC.
P.O. BOX 457
31 W. 255 ROOSEVELT RD.
WEST CHICAGO, IL. 60185

Fire Protection Starts with the Finish.

muralo

super-hiding
LATEX-FLAT

FIRE RETARDANT PAINT

INTUMESCENT TYPE

Stricter enforcement of existing fire-prevention requirements, tougher new codes, and growing public concern for safety are the reasons for this superb new UL-Classified product from Muralo . . . a product that offers superior fire protection properties in a viable latex paint.

JRG, INC.
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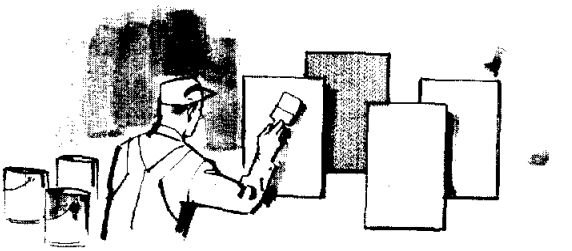
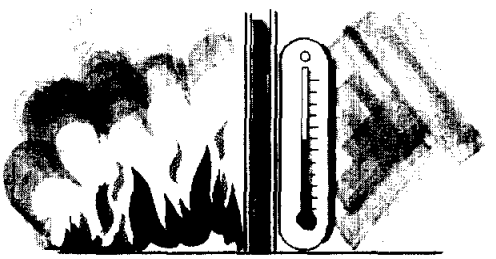
Features

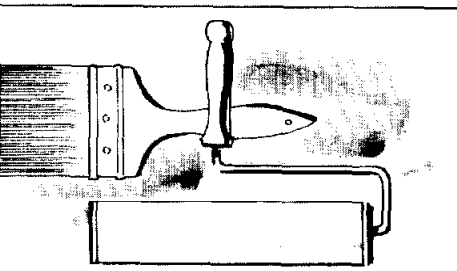
Fully tested and researched — both in the UL laboratory and in the field.



A superior latex finish made by the pioneer in latex paints.

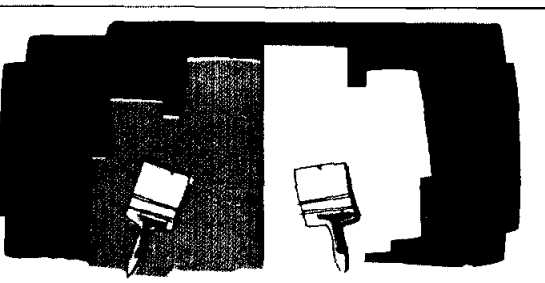


Acts as an instant-insulator — reduces transmitted heat.



May be brushed or rolled . . . it's easy to apply.

Reduces danger and damage caused by fire.



Hiding quality far superior to early fire retardants . . . dries to a hard attractive latex finish.

And . . . in addition Muralo is *Fast-drying* • *Scrubbable* • *Non-toxic* and comes in Base White, ready to tint to over a thousand colors.

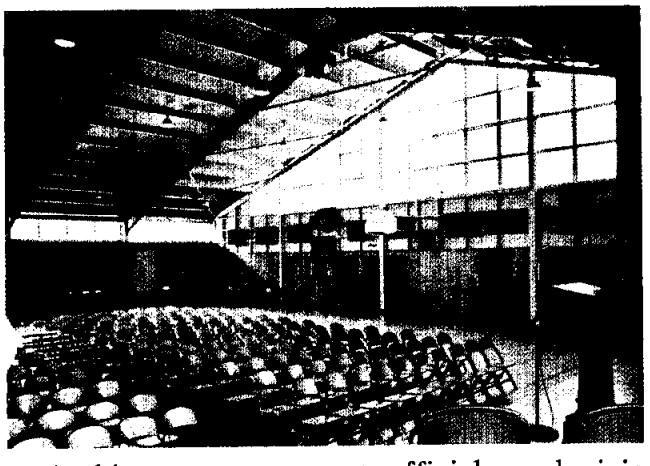
We are proud

) introduce Muralo Fire Retardant Latex Flat Paint . . . a smooth, easy working, scrubbable, good hiding, fire retardant finish for a truly professional job with maximum fire protection.

Impedes the spreading of flames

by forming a barrier between the fire and the combustible material . . . this washable latex paint provides an insulating layer that retards the heat of fire . . . holds off the spreading of flame and protects substrate . . . providing maximum protection.

Institutions



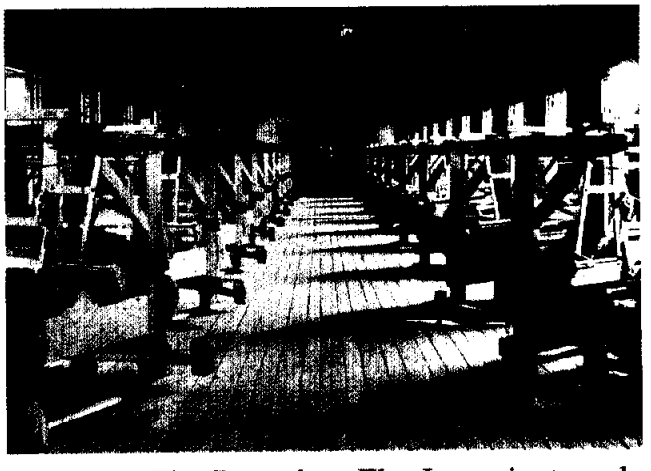
Architects, government officials and civic leaders have acted positively in requiring the use of fire retardants in schools, hospitals, nursing homes, theatres, shopping centers, hotels and restaurants.

Combustible wallboard, acoustical ceiling tiles, wood, combustible shelving, wainscoating, open-joist construction, exit and entrance areas are usually singled out for the priority application of Muralo's Fire Retardant Flat Latex. Other areas in the same installation often are painted in matching Muralo finishes. Muralo finishes are available in white and over a thousand colors, and easily matched using the Muralo color digest system.

Muralo provides the protection of a superior intumescent paint film without excessive sacrifice in quality or appearance.

Industrial – commercial use

Muralo, the industry leader in the manufacture of water base paints has extensively job-tested this new product. Reports from painting contractors are excellent. Contractors find this intumescent latex easy to use, dries rapidly and has all the advantages of the other Muralo latex paints.



Muralo Fire Retardant Flat Latex is strongly recommended for use in factories, warehouses, chemical plants, oil refineries, boiler areas and other combustible areas . . . wherever durability, maintenance and appearance are important.

Meets toughest specs

For complete verification of Muralo test results, see the Underwriters' Laboratory report on the last page.

Fire Fighters Claim First Moments Are Critical!!!

Flash fires can be prevented. Those first few minutes are the difference between minor incidents and tragic, major fires. For independent test results and further data write The Muralo Company, Inc., Hobart Ave. & E. 5th St., Bayonne, New Jersey.

muralo

super-hiding
LATEX-FLAT
FIRE RETARDANT PAINT

INTUMESCENT TYPE

the Finish to Start with for Early Fire Protection.

The Underwriters' Label

Muralo Latex Flat Fire Retardant paint has been tested by Underwriters' Laboratories Inc., in accordance with the requirements of Fire Hazard Classification of Building Materials (UL 723).

The results below indicate Muralo's superior fire retardant qualities when applied to unprimed douglas fir in several standard classifications.

Muralo Fire Retardant Paint is a latex base material with no flammable solvents and has *no flash point* (closed cup).

Every can of Muralo Fire Retardant Paint will carry the Underwriters' label and the product is placed under the Label Service Program of Underwriters' Laboratory Inc.

Extract from Underwriters' Laboratory Report #R5963

Test Surface	Flame Spread	Fuel Contributed	Smoke Developed	Number of Coats	Covered Per Sq. Ft.
Douglas Fir Wood	15	0	20	2	200

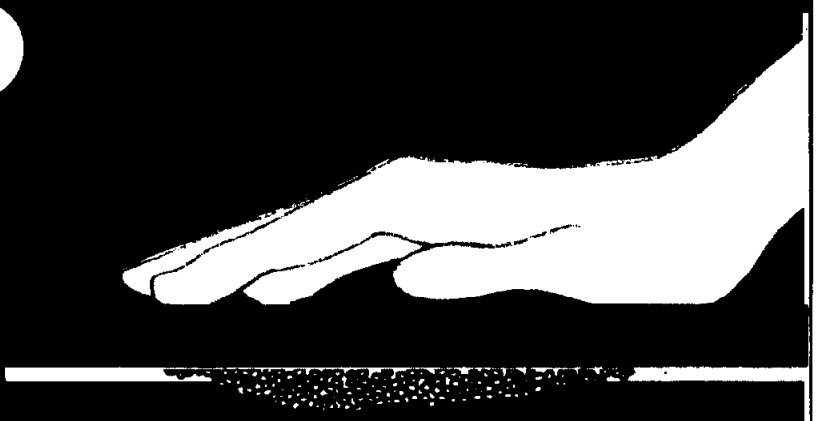
Complete report R5963 available on request.

Values based on "100" for untreated red oak and "0" for asbestos cement board.

THE MURALO COMPANY INC Bayonne NJ 07002/USA

muralo

INTUMESCENT PAINTS



This brochure describes the Fire Retardant Paint manufactured by Muralo using intumescent materials from Monsanto Chemical Company. The testing methods described are the same as those used to evaluate Muralo Latex Intumescent Fire Retardant Paint, which is also UL-approved. Ask for the Muralo catalog bulletin and technical data sheet.

Fire-Fighting Coatings

Few people indeed know about the most recent advances made in making PAINT a fire fighter. And there are several reasons. It's a complicated subject. "Paint" is usually thought of first simply as "decoration", rarely as part of fire protection. And fire-fighting paints are a very special kind. They cost more, and they rarely appear in the news. Consequently – many building superintendents, contractors, and even many experts such as fire marshals and building inspectors have yet to learn how well PAINT can function as a 24-hour fire-fighter.

But not just any paint, of course! The key word to look for on the label is INTUMESCENT. That word marks a very special kind of fire-retardant paint.

Intumescent!

Just what does it mean?

It means that the paint does a lot more than simply decorate. At the first lick of a flame, the properly-coated surface that looks like any standard good quality paint job instantly starts to "intumesce" – to swell, to bulge-up into a solid foam. A film six mils thick (about 2 cigarette papers) will swell up to make almost an inch thick layer of black foam. With the first hot flash, on any surface protected by intumescent paint the coating acts like bread rising or beer foaming – but much faster – and turns into a protective blanket.

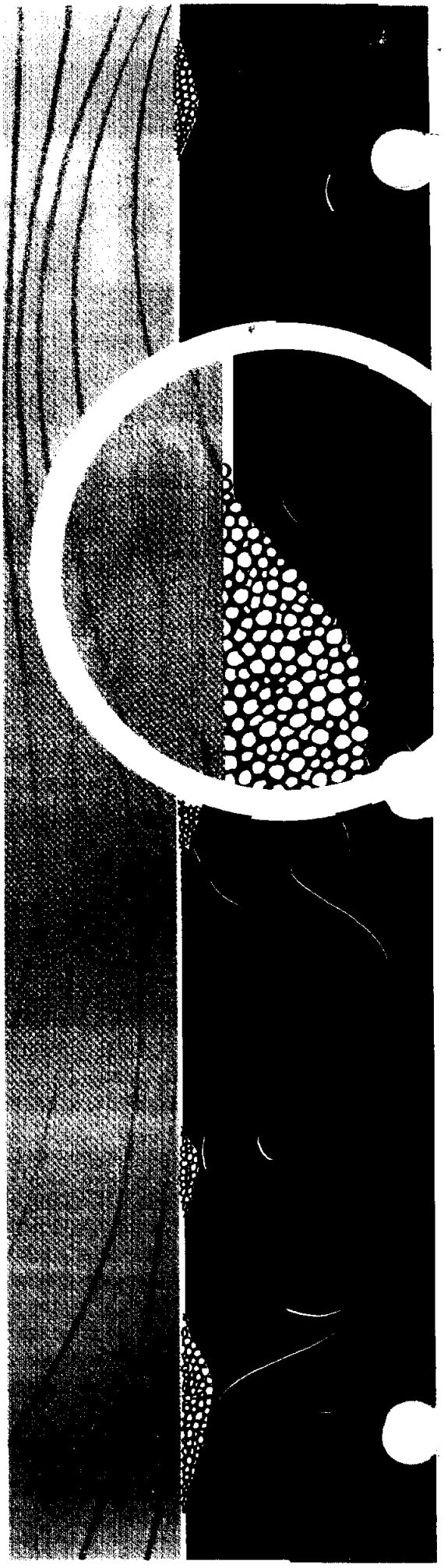
The puffed-up foam contains millions of tiny, closed, fire-resistant cells!

And this is what happens. The foam insulates. It shields whatever is underneath to delay contact with the flames. The layer makes a barrier to retard the rapid heating up and ignition of the surface beneath.

Even when fire temperatures reach 1,500-1,700 °F the insulating shield stays on the job for up to an hour. The foam suppresses smoke. The foam retards fire spread. The foam postpones the ignition of properly-coated walls, ceilings, and roof or cellar timbers for anywhere from minutes to an hour, depending on fire intensity. And this delay of the fire's propagation can give precious TIME to reach safety.

But the fire-retarding foam does more than increase escape time. When a sprinkling system or firemen have extinguished the fire, the foam has done a lot to minimize damage. If the fire hasn't been too big or burned too long – the substrate may still be servicable. In many instances, the dry charred foam can simply be scraped off – and the timber, stairwell or wall repainted. The substrate will still be sound. And the repair of fire damage can be a fraction of the cost – because the "intumescent" shield stayed on the job.

Let's take a look at what happens when a fire breaks out. Then it will be easier to see how intumescent paint offers an extra margin of protection – to people and property. And especially, to see the most critical places where an intumescent paint should be used.



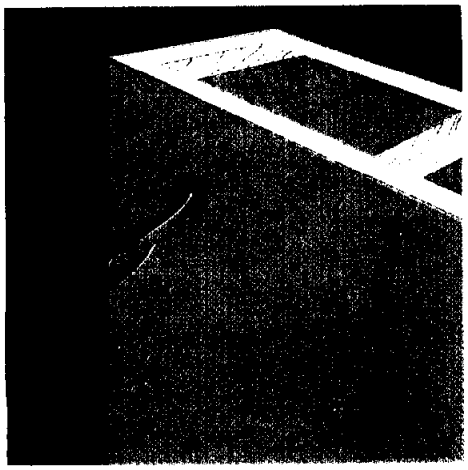
Here's what happens when a fire breaks out

Fires break out for scores of reasons. They are caused by adults' carelessness with cigarettes, children's playing with lighters or matches, electrical short-circuits, lightning, over-heated furnaces, cook stove accidents, combustible gas or vapors ignited by the spark of a light switch or a refrigerator cut-off, spontaneous combustion of oily rags or paper stacks and dozens more. Whatever the cause of building fires, they have two

things in common: they are "unexpected", and their progression to total destruction follows a similar pattern.

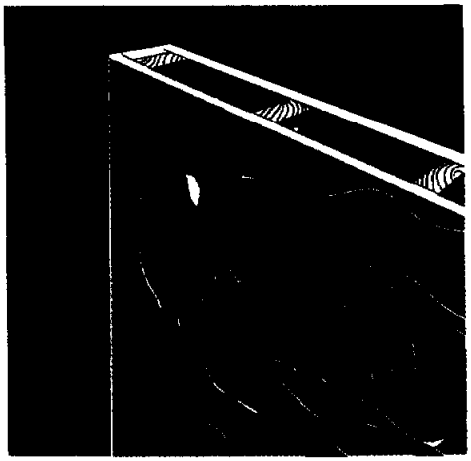
Highly qualified experts have studied building fires exhaustively and here is what they have found happens.

When a fire starts by accident, somewhere in a building, – four events take place one after the other: ignition, spread, flashover, total combustion. The first event is ignition.



The starting fire can be quite a small blaze to begin with, igniting from any of a score of causes in a room, cellar, attic or wall space. Once ignition takes place – unless controlled – the other three events take place in the following order.

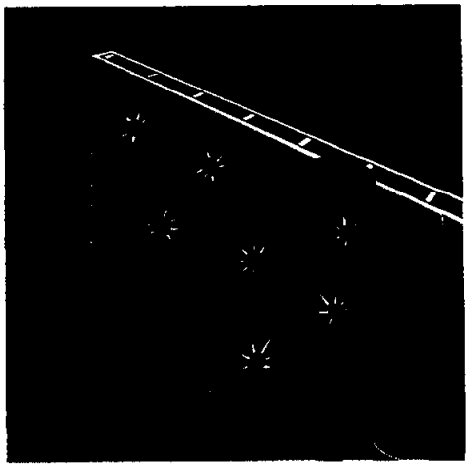
The second event is flamespread. This takes the form of rapidly crawling fire tongues that lick across the **surface** of walls, ceilings, floors or supporting timbers. What governs the speed and intensity of flamespread is the character of the surface and its evolution of gas – whether the substrate itself is combustible or not. The travel



rate of flamespread can be as high as 20 feet per second depending upon the surface combustibility of the substrate. The air in the vicinity gets superheated, toxic gases are released, oxygen is used up and yet another element enters the destruction: a large amount of **radiant** heat.

Adjacent combustible materials – wood, wallboard, surface coatings – ahead of the spreading tongues heat up and the flames lick further, spreading over a constantly wider area. As the flame spread progresses, the heated-up subsurfaces release great volumes of volatile gases into the air. When this mixture of gas and air reaches a critical proportion – it ignites. The result is "flash over". What happens is a great belch of fire, sometimes reaching the proportions of explosion. Most usually, a sudden searing stab of flame flashes from the area of burning, reaching far beyond. This "flashover" instantly uses up most of the surrounding oxygen and can shoot the premise temperature up to over 1000°F.

Flashover – the combination of superheated air, depleted oxygen



and sudden evolution of toxic gases – is often the chief culprit for so many deaths in building fires. It is an awesome phenomenon!

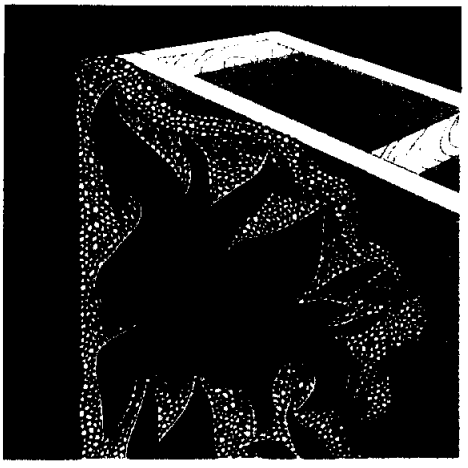
If you watched a building fire, you may have seen it. It is the hollow, thunderous "poof" that blows glass from the window frames, sends tongues of flame flashing out every opening. You can often see it in miniature in a fireplace — when a slowly burning log suddenly shoots a flame across its surface and a bright flash fills the hearth. In a building fire — you will typically see it happen once, at a certain point in the fire's growth, and it is the prelude to the steady roaring total combustion. Flashover is the sudden transition from localized burning to an engulfing, premise-enveloping fire. The aftermath is usually a steady burning, the rate depending upon the amount of available draft, that ends in total destruction.

The final event in the burning sequence is this fire-y consumption of the substrate itself as it steadily burns to ash. The rate of destruction depends upon the amount of air reaching the burning area and the combustibility of the fully-ignited substrate.

This, then, is what happens in building fires. And this sequence illustrates why and how intumescent paints can help save life and minimize property damage.

A blanket of insulation

Intumescent coatings start turning to insulating foam at a temperature of 300°F — less than a hundred degrees higher than boiling water. The heat sensitive ingredients in the smooth coating react and froth up into a foam containing millions of tiny hollow cells. The expansion is incredibly rapid. What was once a smooth, decorative surface turns into a thick layer of insulation.



The insulating foam keeps substrates from rapidly heating up to evolve gas and thus flashover — the destructive event that often puts fires "out of control" — may be prevented or greatly postponed. The frothed mass impedes flame-spread and thus holds down smoke and evolution of radiant heat. And, in short, the fire-fighting foam delays rapid spread of flame and onset of total burning. It forestalls rapid build-up of intense heat, heavy smoke and evolution of combustible gases.

In a number of fire tests, it has been found this 3-way protective action has been a major factor in keeping a fire within bounds until it could be extinguished. In actual fires, intumescent paints can minimize property damage. And most important — delay of flame-spread and total burning can provi precious time — an added margin c safety for building occupants.

Where intumescent paints help increase building fire safety

The National Fire Protection Association's LIFE SAFETY COD #101 stipulates the minimum flamespread ratings admissable for walls, ceilings and floors in various parts and kinds of buildings. It specifies the degree of fire safety to be provided for various kinds of occupancy. Local building codes sometimes duplicate and nearly always reflect the fire protection guidance of these national codes. Materials are thus categorized from Class A (Flame Spread 0 - 25) to Class E (Flame Spread over 500). In the construction of new buildings, architects and c tor are guided by local building codes and conformance to established fire safety standards is relatively straight forward. However, a major problem frequently occurs with existing buildings, when learning from experience, a local fire code is tightened or an altogether new code is put into effect.

It is significant that the N.F.P.A. LIFE SAFETY CODE #101 recognizes that intumescent paints can be effective for increasing the fire safety of established buildings. In Section 6-2121 the Code states:

"In existing buildings the required flamespread classifi-

cation of interior surfaces may be secured by applying approved fire retardant paints or solutions to existing internal surfaces having a higher flame spread rating than permitted."

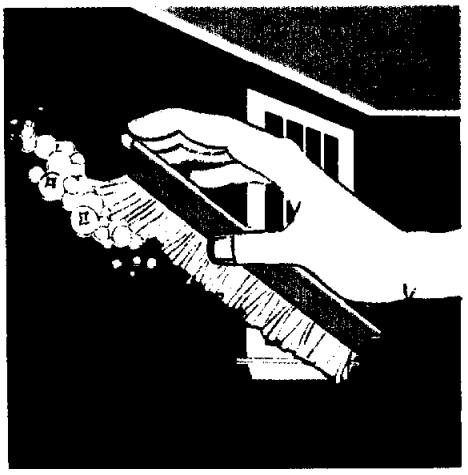
An intumescent paint applied at the manufacturer's recommended rate can make it possible to comply with a flamespread rating lower than what exists on an already-installed wall, ceiling or other surface. The flamespread rating is shown on the label of the can.

Intumescent paints can give an extra measure of fire protection to property and people. Architects, developers, building superintendents and home owners can use this simple safeguard in a number of strategic ways:

- As a fire retarding coating on roof timbers, floor rafters and support members
- To coat corridors, stairwells between storeys, and exits from buildings
- On dividing walls around space heaters, furnaces, or heating plants in basements or compartmented in living areas
- In the working areas of a factory or process plant exposed to gas- or oil-fired heaters, welding or brazing operations, handling of combustible materials.

How to select an intumescent paint

Fire fighting coatings come in a broad range of colors. Leading paint manufacturers offer their special brands of intumescent paint — with specified flamespread, smoke evolution ratings, coverage required,



and other properties such as resistance to leaching. (This last is highly important, for example, in hospitals where frequent scrubbing is necessary.)

It is quite a simple matter to select an intumescent paint for whatever its intended use.

Flamespread ratings are determined by the **Method of Test of Surface Burning Characteristics of Building Materials** (N.F.P.A. 255, '72). In general, the lower the "Flamespread Rating" (when coating is applied at the specified rate) the greater the fire retarding power. The lowest flamespread coatings, with ratings from 0-25, are best in this regard, and are grouped as "Class A" materials.

Fire retardant coatings are subject to Underwriters Laboratory testing, rating and listing. Their test for evaluation is UL-723; it covers flamespread (using the N.F.P.A. 255 Method), smoke generated and fuel contributed; the ratings are published in the UL's annual listings. Frequently, this UL rating is printed on the label and/or supplied by the paint maker as printed specifications.

The Federal government recognizes the protection value of intumescent paints for safeguarding property paid for by taxpayers. The General Services Administration specifies the performance required on the basis of fire retardance, scrub and leaching resistance. (G.S.A. TTP-1932)

Aside from aesthetics, an intumescent paint can be selected on the basis of coverage (sq. ft./gallon), film thickness required for a given flamespread rating, choice of 1- or 2-coat system, scrubbability (where abrasion is critical), and resistance to leaching (for frequent washing).

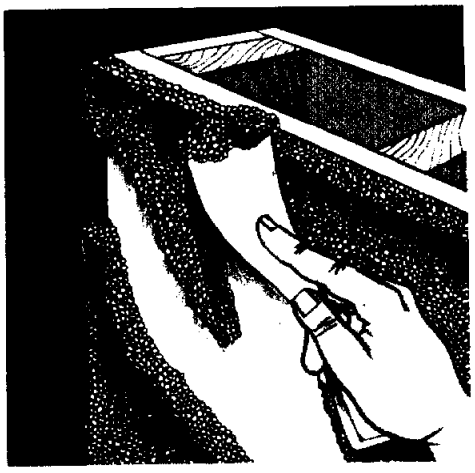
In applying an intumescent paint — whether by brush, spray or roller — the film thickness is highly important. To obtain the specified protection from a particular formulation — the maker's directions for application must be followed.

What an intumescent paint will do in case of fire

A fire fighting coating can be worth hundreds of times its cost in minimizing premise damage in the event of fire. And the value cannot be calculated when the "paint" contains or delays fire spread long enough to save human life.

When fire breaks out, whatever the source, in an area with surfaces properly coated with intumescent paint – here are the benefits it delivers that a conventional paint cannot:

- Upon first encroachment of the source flame, the film (at only 300°) foams up as much as 200 times its thickness to make a continuous insulating foam composed of tiny closed cells.
- The greatly-expanded cellular foam delays the lateral spread of fire and helps protect the substrate beneath it. Occupant escape time is prolonged; destruction of property is delayed, reduced or avoided; restoration costs are minimized.
- On properly coated surfaces, the generation of combustible gasses and high temperatures that lead to flashover and the creation of lethal atmospheres is delayed or prevented.
- The thick, tightly-adhered foam coating thermally insulates the substrate walls, ceiling, or support member from excessive heat, thus postponing ignition.
- The insulation maintains the protection of the substrate for as long as an hour, often long enough to prevent actual ignition.
- Even in severe fires that have been brought under control in reasonable time, the substrate wall, ceiling, support timber may often be scraped clean and found to be still in servicable conditio



Intumescent paints are not designed to **prevent** fires. They are designed to keep damage to a minimum and to "buy time" until help can arrive.

Intumescent paints, when properly applied, can be used to retard flamespread and postpone or prevent flashover. This does not mean that intumescent paints will not burn.

Would you like to know more?

For complete information and technical data on its Fire Retardant Paint similar to that described in this brochure, contact:

JRG, INC.
P.O. BOX 457
31 W. 255 ROOSEVELT RD.
WEST CHICAGO, IL. 60185

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Chicago/Los Angeles/Atlanta