

HEAT RESISTANT PAINTS

"VIPER" Heat Resistant Paints are special Silicon based exterior coatings which show remarkable heat resistant properties when subjected to constant and continuous heat including radiated heat.

"VIPER" Heat Resistant Paints are available in three grades to withstand temperature upto 700°C.

Although developed to suit the specific temperature range. "VIPER" Heat Resistant Paints can withstand intermittently higher temperatures for short duration upto 50° beyond its specified temperature.

USAGE

"VIPER" Heat Resistant Paints find extensive applications in Chimneys, Boilers Stacks, Ovens, Silencers, Hot Plates, Gas Stoves, etc. etc.

TECHNICAL DATA

	PRODUCT	HRC-300	HRC-600	HRC-900
÷	COLOUR	Black & Aluminium Shade.	Aluminium Shade Only	Aluminium Shade Only
		2. While & Light Shades on request.		
>	WORKING TEMPARATURE	For 1 For 2		
	Normal	400°C 300°C	600°C	700°C
	Intermittent	400°C 350°C	650°C	750°C
>	VISCOSITY (FORD CUP 4)	30 Sec <u>+</u> 5 Sec at 30°C	30 Sec <u>+</u> 5 Sec at 30°C	30 Sec <u>+</u> 5 Sec at 30°C
>	SYSTEM	Single Pack, Dual Pack for Alum. Shade only	Dual Pack	Dual
,	PRIMER	Not required	Not Required	Not Required
•	THINNER FOR BRUSHING	Not required	Not Required	Not Required
•	THINNER FOR SPRAY	WP 913(20% appx.)	WP 913(20% appx.)	WP 913(20% appx.)
,	SCRATCH HARDNESS	As per IS:101	As per IS:101	As per IS:101
>	FINISH	Semi Glossy (For coloured) Glossy (for Al. shade)	Glossy	Glossy
•	DRYING TIME			
	Touch	2 to 3 Hours	2 to 3 Hous	2 to 3 Hours
	Curing for Hard dry	200°C for 2 hrs or 250°C for 1 hour	200°C for 2 hrs or 250°C for 1 hour	200°C for 2 hrs or 250°C for 1 hour
>	SHELF LIFE	One Year	One year	One Year
>	COVERING CAPACITY (PER COAT)	9-10 SQM/Ltr 15 SQM/Ltr for Al. Shade	15 SQM/Ltr	15 SQM/Ltr

Fire Proof Sealing System for Cables, Fire Proof Steel & Wooden Doors, Fire Protective Coatings for Cables, Steel, Wood, Thermocole, etc. Flame Proof Cladding for Hot/Cold insulation and A/c ducts, Specialised Head & Corrosion Resistant Paints, Rust Removers, Rust Converters & Paint Removers.



United Agro Engineering Pvt.Ltd.

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SURFACE PREPARATION

Remove all loose scale, rust, grease oil etc. and ensure surface is clean and dry. If necessary, use aeromatic solvents for cleaning. A property cleaned surface will provide superior results.

NOTE ON CURING

Heat Resistant Paints hard dry only after curing. Whereas large equipments Ike chimneys, stacks etc. cure themselves in use, it is essential to cure small parts before packing/shipment. Unless cured, the paint will remain tacky and may get washed away with water/rain.

There must be at least 2 to 3 hours time gap between application of Heat Resistant Pans and curing to avoid bubble formation.

PRIMER

As no primer can withstand temperature beyond 120°C, the use of conventional primer is not suitable.

Heat Resistant Paints, by themselves, exhibit good corrosion resistant properties. it surface preparation is properly done,

The use of Rust Converter "VIPER RC864 when applied over slightly rusted, unpainted surface converts the rust/metal into firmly adherent primer, which can withstand high temperature and increases the corrosion resistant properties of Heat Resistant Paints enormously.

IMPORTANT

- It is preferable to apply the product In 2 to 3 thin coats. A maximum of 3 coats are recommended.
- It should be applied on surfaces at room temperature only and not on hot surfaces.
- Do not apply on areas exposed to highly alkaline environments.
- In case of Aluminium shade for HRC 300, HAC 600 & HRC-900. mix aluminium paste separately provided with the medium, prior to application.
- Use mixed paint within 8 hours.
- Appx. 2.25 Kg. Aluminium Paste is provided with 20 Litres liquid portion. Mix till homogeneous.
- If using part portion, stir liquid portion well before use.

PACKING

20 Litres and 4 Litres M.S. Containers.

• Good quality stoving thinner may be used in place of Thinner WP 913.



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TECHNICAL DESCRIPTION (Physical Characteristics)

DESCRIPTION	FIRERETAR FR-881	FIREGUARD FR-880 (PRIMER)	FIRESHIELD FRS-881 (FINISHING PAINT)	FIRERETAR FR-881 (CLEAR)	FIRE & CORROSION RESISTANT PAINT FR-1102
Color	Off White	Off White	Radiant white and Off white*	Transparent	white and Off white*
Viscosity (Ford Cup 4) at 30deg.c.	60 +/- 10 Sec.	80 +/- 10 Sec.	60 +/- 10 Sec.	80 +/- 10 Sec	60 +/- 10 Sec.
Wt/Ltr.	1200 +/-50gms.	1200 +/-50gms.	1100 +/- 50gms.	1000 +/-50gms.	1100+/50gms.
Finish	Matt	Matt	Semi glossy/	Smooth &	Smooth and semi
			Glossy	transparent	glossy
Drying Time	2-3 hours	2-3 hours	3-4 hours	3-4 hours	3-4 hours
Touch Dry Hard Dry	24 hours	12 hours	24 hours	24 hours	24 hours
Thinner	None	WP-914	WP-914	WP 913	WP 913
Recoating Interval	Overnight	Overnight	Overnight	Overnight	Overnight
Spreading Capacity (IS:101)	8-9 sq.m/lit/coat	9-11. sq.m/lit/coat	9-10.sq.m/lit/coat	8-9sq.m/lit/coat.	8-9sq.m/lit/coat
Wet Opacity (IS:101)	5-6 sq.m/lit/coat	8-9sq.m/lit/coat	6-7 sq.m/lit/coat	N.A	6-7 sq.m/lit/coat
Flexibility And Adhesion (IS:101)	Confirms	Confirms	Confirms	Confirms	Confirms
Water Resistant Test (IS:101)	Confirms	Confirms	Confirms	Confirms	Confirms
Resistance to lubricating oil(IS:101)	Confirms	Confirms	Confirms	Confirms	Confirms
Flash Point	Above 30°C	Above 30°C	Above 30°C	Above 28°C	Above 30°C
Packing	4Lit &20 Lit	4Lit &20 Lit	4Lit &20 Lit	4Lit &20 Lit	4Lit &20 Lit
Shelf Life	One year	One year	One year	One year	One year

^{*} Shades on request

LIABILITY

Whereas the products are manufactured to exacting standards, the nature of the substrate and the application procedure is beyond our control. Whilst please to offer advice, we cannot guarantee, The finished results or accept liability for it. All information provided in good faith but without warranty express and implied.

The information contained in this literature does not necessarily refer to the particular requirement of the customer, when further advice should be obtained

This supersedes all previous publications. Specifications subject to change without notice.



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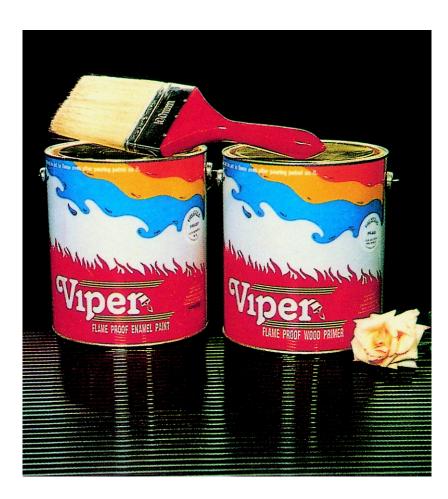


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LEADERS IN PASSIVE FIRE PROTECTION



NIL /Oct. 06/ISSUE-4 Product data sheet no.1



VIPER FIRE RETARDENT PAINTS

"IT JUST WOODN'T BURN"

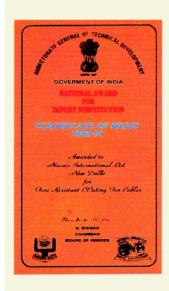
^{*} Tech. specification subject to change / revision

THE COMPANY

Navair International Ltd. are the acknowledged pioneers in the field of passive Fire Protections Systems and have executed large number of projects throughout the country in several Thermal Power Stations, Nuclear Power Plants, Refineries etc.

NAVAIR INTERNATIONAL LIMITED manufactures and supply to the highest British, American & Indian Standards wide range of Fire Resistant Coatings for fire protection to structural Steel, Flame proof decorative paints for Wood, FR clear coating for Flame proofing of, furnishing fabrics and Tapestry etc. Flame proof Hessian for A.C. Ducts, Flame proof Tarpaulines, Tents & Canvas etc., beside a unique total fire protection system for Cables comprising of CABLE FIRE BARRIER for 4 hours Resistance and a special mastic paint for Cables which makes highly combustible PVC Cables equivalent to Fire Survival Cables in terms of IEC:331.

The company also manufactures decorative wooden FIRE DOORS of 30 mts. 1 hour & 2 hour Insulated and Uninsulated STEEL FIRE DOORS OF 1, 2, 3 hours rating, in addition to fire & Chemical Resistant Coatings, Fire Resistant Anti-bacterial Coatings and many other quality products.





NAVAIR INTERNATIONAL LTD. - A National Award Winner company manufactures a wide range of fire Retardant Paints and Coatings, confirming to national and international standards and have been used in every sphere of industry and construction activity for over two decades.

RANGE OF FR PAINTS AND COATINGS

- FIRERETAR FR 881 FR Paint for Concealed woodwork
- FIRERETAR FR881(CLEAR)- FR Decorative Clear coating for woodwork
- FIREGUARD FR 880

 Fire retardant Primer for Exposed Woodwork
- FIRESHIELD FRS 881-FR Finishing Decorative Paint for woodwork
- FIRE & CORROSION RESISTANT PAINT-FR-1102

 FR Decorative Paint for Steelwork such as Electric

 Panel Boards

BRIEF DESCRIPTION OF PRODUCTS

FLAME PROOF ENAMEL PAINT (For Concealed Wood Work)

> FIRERETAR FR-881

Concealed wood work like frame work above false ceiling, unexposed portion of partitioning, paneling etc; is highly prone to fire due to years of combustiable accumulated waste & electrical short-circuiting etc. The fire risk is even higher since it cannot be detected early, particularly during closed or unattended periods.

As it is not possible to dismantle this wood work and repaint again,- durability and not the finish becomes the only important consideration.

- Unique single pack ready to use.
- No primer and thinner required.
- Apply 2/3 coats by brush.
- Anti-termite.
- Maintenance free.
- No repeat application, required.
 USAGE-Apply a unthinned coat of FR 881
 on woodwork @3.5 sqm/lit to achieve class1 surface spread of flame

APPROVELS

FR-881 is CPWD-DSR approved item (Ref.Page 165 Code no 13.88a-2002)

FLAME PROOF ENAMEL PAINT (For Exposed Wood Work)

- > FIREGUARD FR 880 WOOD PRIMER
- > FIRESHIELD FRS 881 FINISHING PAINT
- Replaces conventional Enamel paint at very nominal extra cost
- Provides super whiteness exquisite and elegant finish to doors, windows, furniture, partitions, meter boxes etc.
- Use two coats of Fireguard FR880 Wood Primer

followed by 2/3 coats of Fireshield FRS 881 Finishing paint even on previously painted/polished surfaces.

- For maintenance, apply only one or two coat of Fireshield FRS-881 to redeem finish.
- Fireshield FRS-881 normally available in white and off-white shades.
- Mix good quality stainers to create variety of shades.
- Prime shades on request.

FIRERETAR FR-881 CLEAR (For Exposed Wood Work)

Fireretar FR-881 (Clear) is a single pack, ready to use, intumescent Coating which effectively retards the spread of fire along the surface of wood, reduces flue gases density and flue gas temperature, protects real values and reduces the risk of damages.

Provides, smooth and transparent decorative polish finish

Usage: For indoor use on soft & hardwood, plywood, chipboard, fiber insulation boards, hardboards etc. Not suitable for surfaces exposed to mechanical stress.

Surface preparation: Surface must be dry, free from dust, oil, wax, greases. Old coatings should be removed.

Application: To to achieve class-1 surface spread of flame, apply @ 3.5sqm. Per liter in multiple coats with brush/muslin pad using conventional french polish process.

Top Coat: Viper Sealant Coating FR-911 (Clear) should be used as top coat for areas which are exposed to high humidity/weathering conditions. Contact us for more details.

Thinner: Use, WP-913upto max. 10%. Use of other thinners may affect compatibility &fire retardant properties.

Caution: Use of fire retardant paint on ordinary doors does not make them fire rated doors (FD30, FD60 etc.). For compart-mentalization, use only Viper make fire check doors of specified rating, which incorporate special construction, insulation materials and heat activated fire & smoke seal.

CERTIFICATION: The product is tested to BS:476 Part 7, IS:12777, ASTME:662-79, ASTMD:1360 at CBRI, Roorkee & other reputed laboratories.

NOTE: Full fire resistant properties of the viper Products are normally achieved **after seven days**

FIRE & CORROSION RESISTANT PAINT FR-1102 (FOR STEELWORK)

"VIPER" FR-1102 is a rubber based air drying fire retardent paint with excellent acid/alkali resistant properties.

Ordinary synthetic enamel or epoxy paints, being flammable add heavily to the heat of combustion, spread fire rapidly and are serious industrial fire hazard.

USAGE:

FR-1102 can be used on wide variety of substrate such as steel surface, cement concrete surfaces etc.

It finds application in wide range of industrial activity such as

- a. Electrical panel boards
- b. Bleaching/drying, electrolyzing rooms of cotton mills.
- c. Chemical and fertilizer industries
- d. Pipe lines running in coastal areas.
- e. Pulp and paper mills.
- f. Galvanizing paints/battery rooms.
- g. Coastal and Marine Environment.

Note: Viper make FR1102 paint is a Fire Retardant and Corrosion resistant paint. This paint doesn't provide any fire resistance properties.

For achieving fire resistance on load bearing steel refer to tech. data of STEEL BAR 1101-intumescent coating for steel work.

APPLICATION

Excellent field results have been obtained on lightly rusted metal surfaces.

- a. Remove loose/flaky rust with wire, brush etc.
- b. After 48 hours apply one coat of "VIPER" Primer FR-1101 (R.f.u) followed by two coats of FR-1102 in desired shades.

GOVERNING SPECIFICSTIONS

It meets the requirements of IS: 157, IS: 159 and IS: 160 for its chemical and corrosion resistant properties, and IS:162 for Flame propagation properties.

Approved for use on electrical panels by Indian Space Research Organization (ISRO)

CHEMICAL RESISTANCE PROPERTIES

FR-1102 exhibits its excellent resistance to vapors of the chemicals like Ammonium nitrate, NaOH, $Ca(OH)_2, H_2SO_4$ and other acids in various concentrations.

CORROSION RESISTANCE

It effectively resists corrosive gases like Chlorine, Hydrogen Sulphide, Sulphur Dioxide, Nitric Acid fumes and all organic salts in all concentration in water.

ECONOMY

Life of FR-1102 is apprx. twice the life of ordinary corrosion resistant synthetic paints and as such, proves to be highly economical in long run.













5707

30, 60, 90 & 120 MINUTES FIRE PROTECTION

ON-SITE & OFF-SITE WATERBORNE decorative intumescent coating FOR STRUCTURAL STEEL



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Nullifir∈ S707

water-based solutions offer faster, safer and more economical fire protection to internal steelwork than solvent-based solutions







5707

30, 60, 90 & 120 MINUTES FIRE PROTECTION

ON-SITE & OFF-SITE WATERBORNE decorative intumescent coating FOR STRUCTURAL STEEL

ENVIRONMENTALLY FRIENDLY SYSTEM

S707 Range

- Fully tested and approved
 - BS476: Part 20/21: 1987, in line with the ICF and ASFP guidelines for 30, 60, 90 and 120 minutes
 - Surface spread of flame and propagation tested to BS476: Part 6/7, Class 0
 - Smoke and Toxicity tested to EN 13823 (SBI) and IMO smoke/toxicity
 - Fully tested on Cellular beams in accordance with the ASFP method
 - Yellow Book and ICF approved
- Hi-Solids content
 - For thinner film and faster drying time
- Hi-Build technology
- For single coat application, providing exceptional results - faster

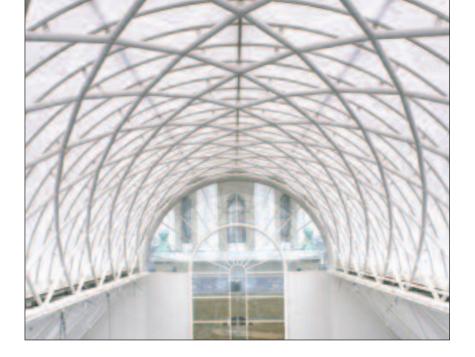


SMOOTH, HARD-WEARING FINISH

S707-60 is white and S707-120 is light grey in colour. Both products dry to a smooth, robust finish. This avoids the need for top seal in non-decorative areas of C1 buildings*, providing even faster and more economical construction times.

PROTECTION AND DECORATION

The S707 range of fast drying, water-based decorative intumescent coatings are designed for on-site and off-site application. S707 can remove the need for top seal in non-decorative C1 buildings*.



		5707-60 Water-based Intumescent Basecoat	5707-I20 Water-based Intumescent Basecoat	
	Area of Use	Internal	Internal	
ties	S.G	1.35	1.37	
Properties	Volume Solids	72%	68%	
Ā	Flash Points	>55°C	>55°C	
	Colour	White	Light Grey	
	Preparation	Onto clean dry compatible primer	Onto clean dry compatible primer	
	WFT/Coat µm	Brush: <1000 Spray: <1600	Brush: <1000 Spray: <1500	
	DFT/Coat µm	Brush: <720 Spray: <1152	Brush: <680 Spray: <1020	
	Drying Times	24 hours between coats at >10°C	24 hours between coats at >10°C	
Technical	Over Coating	Minimum 24 hours at >10°C before top coat	Minimum 24 hours at >10°C. Heavy loadings may require longer top coat	
	Fire Performance	30, 60 and 90 minutes	90 and 120 minutes	
	Steel Section	Universal, hollow sections and cellular beams	Universal, hollow sections and cellular beams	
	Certification	BS476: Part 20/21 BS476: Part 6/7 Class 0 EN13823 (SBI) and IMO smoke/toxicity Certifire fully tested on cellular beams	BS476: Part 20/21 BS476: Part 6/7 Class 0 EN13823 (SBI) and IMO smoke/toxicity Certifire fully tested on cellular beams	
Seal ement	Over Coating	Top seal within 1 month	Top seal within 1 month	
Top Requir	Building Classification	C1, C2 and C3 buildings*	C1, C2 and C3 buildings*	
General	Application Method	Airless spray, short pile roller or brush	Airless spray, short pile roller or brush	
GE	Container Size	25kg Drum	25kg Drum	

COMPREHENSIVE RANGE

5707-60 System

30, 60 and 90 minutes fire protection in a single coat, providing faster application

Reducing application time

- Reducing overall site costs
- Reducing possible health and safety risks to other trades and the general public

Solvent free system

- Low odour
- Low VOC content
- Low risk
- Environmentally friendly

Smooth decorative finish

- No top seal required in non-decorative C1 Buildings*
- Reduced costs
- Reduced application time

5707-120 System

Water-based coating with 90 and 120 minutes fire protection

- Up to 30% faster drying/overcoating times compared to traditional solvent- based systems
- No solvent entrapment, or prolonged solvent odour
- Smooth hard finish, unlike traditional solvent-based systems, which tend to remain soft and susceptible to damage

Solvent free system

- Low odour
- Low VOC content
- Low risk
- Environmentally friendly

Smooth decorative finish

- No top seal required in non-decorative C1 building*
- Reduced costs
- Reduced application time

*NOTE: Average drying times based on typical DFT. For building classification outside of this range please refer to Nullifire's technical services department.



VERSATILE SYSTEM WITH PROVEN PERFORMANCE

Nullifire has pioneered the use of intumescent coatings for the decorative fire protection of structural steelwork for a generation.

S707 is the most advanced and versatile waterborne basecoat of its type. It provides a durable and attractive white surface, similar to a paint finish. However, in a fire, the S707 film expands to many times its original film thickness. This provides an insulating foam-like coating or 'char' to protect steelwork against heat build—up and the effects of fire.

The system, applied to correctly prepared steel, typically comprises two or three layers, depending upon the application:

Primer

To protect the steel against corrosion and prepare the surface. This provides a key for the application of the basecoat.

Basecoat

The S707 intumescent coating itself, applied on-site to a measured thickness to provide the specified level of fire protection.

Top Seal

A hard decorative finish to seal in the basecoat and provide an attractive, high quality appearance.

Application

Nullifire Primer, S707 Basecoat, and Top Seal are applied by fully trained specialist approved contractors, ensuring a high quality service and finish.



COMPREHENSIVE TECHNICAL SUPPORT

Nullifire S707 is backed by full technical information, including

- Loading tables
- Technical Data Sheets
- Fire engineering support
- Materials estimating program
- Application and product training

Expert support and assistance is available for every stage of a project, from product selection and specification to installation and verification.

CONTRACTS SUPPORT

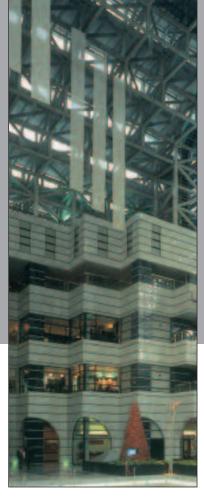
Nullifire operates a unique team of fully trained contract support engineers.

They are available to assist in project management and schedule planning to meet project time scales. They also provide on-site or off-site inspection[†] to ensure correct application of all Nullifire products.

For information or assistance, contact Nullifire today:

Tel: 024 7685 5000 Fax: 024 7646 9547

Email: protect@nullifire.com



†NOTE: Applicable to areas accessible for inspection only. Those parts of the structure to which access cannot be gained, for example areas made inaccessible by subsequent construction work, are outside the scope of Nullifire inspection and verification.



SPECIALIST EXPERTISE YOU CAN RELY ON

Nullifire has been at the forefront of the development of intumescent fire protection systems for over 25 years. Totally focused on fire protection, the company has worked with the world's leading architects, providing fire protection solutions for many of the major buildings of our time.

Nullifire offers high performance, fire protective solutions for:

Steelwork

Decorative, durable off-site and on-site systems for interior and exterior steelwork

Timb∈r

Decorative system in matt or satin clear finish and a full range of RAL and BS 4800 colours

Construction joints

Fire seals for joints, gaps and profiled metal sheeting

Service penetrations

Lightweight, flexible barriers to maintain compartmentation

Call Nullifire Technical Services
Department for full details

Tel: 024 7685 5000 Fax: 024 7646 9547

Email: protect@nullifire.com



30, 60, 90 & 120 MINUTES FIRE PROTECTION

ON-SITE & OFF-SITE WATERBORNE decorative intumescent coating FOR STRUCTURAL STEEL



All information in this brochure is provided in good faith by Nullifire Limited and is believed correct at the time of printing. Nullifire Limited reserve the right to change product specifications in line with their policy of continuing product development

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