

NATIONAL AEROSPACE SUPPLY CO.

33155 CAMINO CAPISTRANO • UNIT C • SAN JUAN CAPISTRANO, CA 92675
PHONE: (949) 240-6353 • FAX: (949) 248-5655

NA 1000

HIGH TEMPERATURE CLEAR FEP RELEASE FILM

DESCRIPTION

NA 1000 is a clear, high temperature halo hydrocarbon release film. With a melt point of 540 DEG F, it is designed for use in composite processing up to 500 DEG F and will release from all resin systems. The high elongation of this film will readily overcome bridging while providing an excellent release in critical contour lay-ups. NA 1000 is chemically inert to all resin systems and is non-flammable. NA 1000 is available in thicknesses of 1 and 2 mils. Shelf life is indefinite.

PACKAGING

Standard roll size	.001 in x 48 in x 600 ft
	.002 in x 48 in x 300 ft

NA 1000P

HIGH TEMPERATURE CLEAR FEP RELEASE FILM

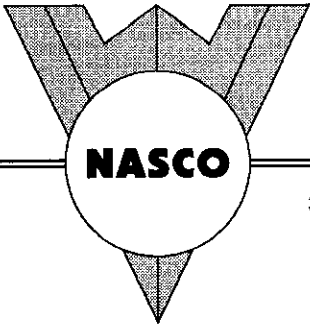
DESCRIPTION

NA 1000 P is a perforated version of NA 1000. Standard perforation patterns include 14 holes per square inch, P1 hole size of .045 inch diameter on staggered ¼" centers, and P3 hole size of .015 inch diameter on ¼" staggered centers. Other perforation patterns are available on request.

PACKAGING

Standard roll size	.001 in x 48 in x 600 ft
	.002 in x 48 in x 300 ft

Note: Information herein is believed to be correct based upon laboratory tests. No warranty of any kind is made except that materials supplied are standard quality. All risk and liability arising from handling, storage, and use of these products, as well as compliance with applicable legal restrictions, rests with the buyer. Buyer's remedy is limited to return and replacement of goods found to be defective due to manufacturer.



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NA1000 RED HIGH TEMPERATURE RED FEP RELEASE FILM

DESCRIPTION

NA 1000 Red is a transparent red, high temperature halo hydrocarbon release film. With a melt point of 540 DEG F, it is designed for use in composite processing up to 500 DEG F and will release from all resin systems. The high elongation of this film (350%) will readily overcome bridging while providing an excellent release in critical contour lay-ups. The highly identifiable red color makes this the preferred release film for composite lay-ups. **NA 1000 Red** is chemically inert to all resin systems and is nonflammable. **NA 1000 Red** is available in thicknesses of 1 and 2 mils. Shelf life is indefinite.

PACKAGING

Standard roll size	.001 in x 48 in x 600 ft	.001 in x 60 in x 417 ft
	.002 in x 48 in x 300 ft	.002 in x 60 in x 208 ft

NA 1000 RED P1 HIGH TEMPERATURE RED FEP RELEASE FILM

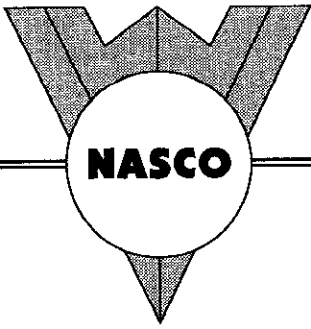
DESCRIPTION

NA 1000 Red P is a perforated version of **NA 1000 Red**. **P1** hole size of .045 inch diameter on staggered 1/4" centers, and **P3** hole size of .015 inch diameter on 1/4" staggered centers. Other perforation patterns are available on request.

PACKAGING

Standard roll size	.001 in x 48 in x 600 ft	.001 in x 60 in x 417 ft
	.002 in x 48 in x 300 ft	.002 in x 60 in x 208 ft

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NA 1100 HIGH ELONGATION RELEASE FILM

DESCRIPTION

NA 1100 is a high temperature, high elongation release film made from a modified fluorinated polymer. NA 1100 will release from all types of laminating resins including epoxies, Phenolics, polyesters, Bismaleimides, and Polyimide during cure cycles up to 450 DEG F. NA 1100 is available in clear and red or blue pigmented colors. NA 1100 is the ideal release film for oven, autoclave and press cure processes. NA 1100 can be perforated to any hole size and pattern desired. It is available as .00075 and .0015 inch thick in widths of 48, 50, and 60 inches wide.

PROPERTIES

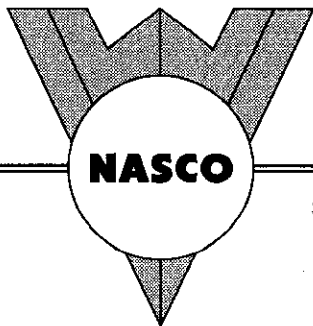
Tensile Strength, RT	6500 psi
Elongation, RT	250%
Melting Point	520 DEG F
Dielectric Constant	2.6 ohms
CTE, linear	5x10 (-5)/DEG F
Color	clear, red or blue

PACKAGING

Standard roll size 48, 50 or 60 inches wide x 500 ft per roll

Custom roll lengths and slitting to width is available on all materials.

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NA 1150 RELEASE FILM

In Aerospace and airframe production, significant savings are realized with NA 1150 film used as the release layer in the lay-up of vacuum-bag molds for advanced composites structures. Unmatched tear strength plus non-stick release properties enable NA 1150 film to reduce production rejects as well as set-up and part since it yields at least 25 percent more surface area per pound than FEP films

FEATURES

- Bold and white tinted grades of NA1150 film provide positive visual checks of lay-up coverage and removal after curing.
- Perforated film grades in various patterns release trapped gases and excess resin for increased production efficiency.
- The excellent elongation of NA 1150 film makes it possible to conform closely to complex tool geometry with deep draw capability.
- Autoclave temperatures up to 375 degrees F are sustained with no appreciable affect on film properties.

NA 1150 film is unaffected by and release easily from epoxy, polyester, phenolic and other composite matrix resin systems.

STANDARD ROLL SIZE plain and perforated, clear, white or blue.

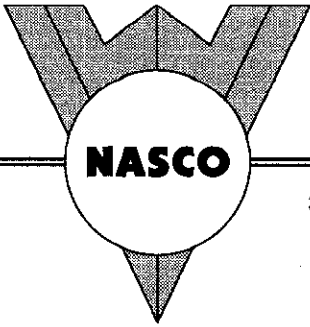
.001	.002
48"x600'	48"x300'

Perforations	P1=.045" diameter hole, staggered on 1/4" centers P3=.015" diameter hole, staggered on 1/4" centers
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PHYSICAL PROPERTIES

	<u>STANDARD</u>	<u>TEST METHOD</u>
Melt point F ©	464 (240)	ASTM D-1505
Tensile strength, PSI	10,000 (MD)	ASTM D-88
Elongation %	200	ASTM D-88
Graves Tear (gms/mil)	450	ASTM D-100
Elmendorf Tear (gms/mil)	does not tear	ASTM D-192
Dimensional Stability %	2	oven
100 degrees F - 10 minutes		

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NA250R

LOW COST AND LOW TEMPERATURE RELEASE FILM

DESCRIPTION

NA250R is a unique orange release film for use in the food, medical, and industrial markets. This film has excellent heat and puncture resistance as well as great tear resistance.

NA250R is currently available in 1.0, 2.0, and 3.0-mil thickness. Other thicknesses are available upon request.

PHYSICAL PROPERTIES

Maximum use Temperature	260 DEG. F
Thickness, inches	.002 & .003
Modus	50000-60000
Tensile Yield Strength (psi)	2000-3000
Tensile Yield Elongation (%)	20-40
Tensile Break Strength (psi)	5000-8000
Tensile Break Elongation (%)	600-900
Tear, Graves (gms/mil)	300-400
Tear, Propagation (gms-force)	300-400

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