PSM International

THREAD LOCKING & SEALING

Wherever you are... *we have the solution!*

PSM International

THREAD LOCKING & SEALING

P.S.M Thread LOCKING & SEALING DIVISION

P.S.M Thread Locking and Sealing is the European leader for pre-applied locking and sealing solutions. We are constantly working with our material suppliers to develop new processes and offer innovative solutions to meet the ever changing demands from our customer base.

Our pre-applied adhesive products contain thousands of micro-capsules of adhesive material which is coated onto the screw threads, forming a bright coloured, dry to touch and ready to use coating.

ADVANTAGES

- Eliminates secondary locking features such as nuts, washers, etc.
- Replaces hand applied tapes or gaskets
- Controlled Patch position
- Replaces Liquid Adhesives

COMPONENT PROCESSING TO ONE-STOP SOLUTIONS

Our strengths lie in our ability to satisfy our customers' diverse demands - for everything from component processing to one-stop solutions - by helping them to source or manufacture quality components, quickly processing them and providing logistic solutions.

- From miniature items for mobile communication to M30 Bolts for Bridge Construction, we have the ability to process a vast range of components
- We can also work with a wide range of materials including stainless steel and non-ferrous materials
- We are approved by a majority of OEMs and have been recognised with a number of industry approvals and standards
- Complete fastener finishing service including a comprehensive range of corrosion resistant surface treatments

QUALITY APPROVALS

B.S.I. ISO 9002 - ISO 14001

Our products are approved to a wide range of industry standards including:

DIN 267, Ford, Rover, Jaguar, GME

OUR MISSION

To provide our customers with the right pre-applied locking & sealing solutions for their fastening demands

AN EXTENSIVE RANGE OF PRODUCTS

We offer a comprehensive range of pre-applied locking and sealing processes, incorporating the branded products shown below, which are colour-coded for identification purposes:

PRODUCT GROUP	TL&S PRODUCT DESCRIPTION	COLOUR CODED	RE-USEABLE	ADJUSTABLE IN SERVICE	LOW INSTALLATION TORQUE	CONTROLLABLE PREVAILING TORQUE	HIGH BREAKLOOSE TORQUE	LOW BREAKLOOSE TORQUE	INSTANT SEAL	FAST CURE RATE	HIGH WORKING TEMPERATURE	LOW CURING TEMPERATURE	CLOSE POSITIONAL TOLERANCE
NYLON	TUFLOK® 180	Blue	●	●		●							●
	TUFLOK® 360	Blue	●	●		●			●				●
	NYTEMP®	Orange	●	●		●					●		●
ADHESIVES	PRECOTE® 80	Pink			●		●			●	●	●	
	PRECOTE® 85	Turquoise			●		●			●	●	●	
	PRECOTE® 30	Yellow			●			●		●	●	●	
	SCOTCHGRIP® 2353	Dark Blue			●		●					●	
	SCOTCHGRIP® 2510	Orange			●		●				●	●	
SEALING	PRECOTE® 5	White	●	●	●				●		●		
	SCOTCHSEAL® 4291	Light Blue	●	●	●				●				
	DRISEAL® 506	Light Blue	●	●	●				●				
	MICROSEAL® 204	Light Green	●	●	●				●				
	NYLTITE®	Natural	●	●	●				●				
	NYSEAL®	Green	●	●	●				●				●
	NYPLAS™	Black	●	●	●				●				●

Pre-production samples are evaluated and then processed free of charge.

TECHNICAL SUPPORT

Our Application engineers are on hand to work with you on all aspects of component production, including:

- Application development
- New product development
- Testing and evaluation of samples

When you need technical support, our specialists are on hand to offer expert technical advice on a global scale.

Pre-production samples are evaluated and then processed free of charge

PRE-APPLIED ADHESIVES

P.S.M Thread Locking and Sealing is the European leader for pre-applied locking and sealing solutions. We are constantly working with our material suppliers to develop new processes and offer innovative solutions to meet the ever changing demands from our customer base.

Our pre-applied adhesive products contain thousands of micro-capsules of adhesive material which is coated onto the screw threads, forming a bright coloured, dry to touch and ready to use coating.

ADVANTAGES

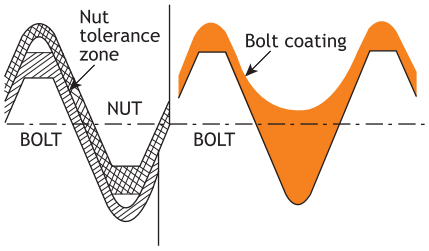
- High Breakaway Torque Pre-applied Adhesives
- Low Installation Torque
- Fast Curing
- Plate and Patch service
- Easy identification
- Not effected by most oils and solvents
- Working temperatures -560C to +2000C
- Controlled Patch Position
- Replaces Liquid Adhesives
- Replaces mechanical locking devices

PRE-APPLIED ADHESIVES

This is a range of inert, dry to touch and ready to use high performance adhesive products.

The thread covered with the adhesive develops its desired locking and sealing properties when compression or shear stress ruptures the micro-capsules after the assembly of the screw. The adhesive is released and within a short time the system hardens. The threads become locked, bonded together and reliably sealed.

Micro Encapsulated Adhesive Principle



A. The Pre-applied process consists of applying the micro-encapsulated adhesive onto a defined area of the male thread surface.

B. The adhesive coating is inert, dry to touch, ready to use.

C. Upon assembly into the mating threaded component the micro-capsules rupture, developing a secure locking of the 2 components with a high strength adhesive bond.

PRODUCT GUIDE

Product	Colour	Type	Max Patch Length	Standard Patch Length	Standard Patch Lead	Storage Life	Storage Conditions (Max)	Operating Temp (°C)	Sealing Capacity (M10 Thread)	Coefficient of Friction	Full Cure Time (hrs)	Size Range
Precote® 80	Pink	Acrylic	50mm	4-6 Pitch	1-2 Pitch Lead	4 Years	35 deg C @100%RH	-50 + 170	>200 Bar	0.26/0.28	12	M4-M30
Precote® 85	Light Blue	Acrylic	50mm	4-6 Pitch	1-2 Pitch Lead	4 Years	35 deg C @100%RH	-50 + 170	>200 Bar	0.16/0.18	12	M4-M30
Precote® 30	Yellow	Acrylic	50mm	4-6 Pitch	1-2 Pitch Lead	4 Years	35 deg C @100%RH	-40 + 150	>200 Bar	0.14/0.16	12	M4-M30
Scotchgrip® 2353	Dark Blue	Epoxy	50mm	4-6 Pitch	1-2 Pitch Lead	2 Years	35 deg C @70%RH	-60 + 150	>200 Bar	0.16/0.18	48	M4-M30
Scotchgrip® 2510	Orange	Epoxy	50mm	4-6 Pitch	1-2 Pitch Lead	2 Years	35 deg C @85%RH	-40 + 200	>200 Bar	0.26/0.28	72	M4-M30

Table: extract from BS 7795:1995

Thread size	Breakaway torque Nm	
	Maximum	Minimum
M6 x 1	8	2
M8 x 1.25	24	4
M10 x 1.5	44	10
M12 x 1.75	80	15
M14 x 2	130	20
M16 x 2	160	30

Note: Adhesive performance to BS 7795 - 1995 standard is based on Precote 80 & 85, and Scotchgrip 2353 & 2510

RECOMMENDATIONS

Hole Preparation

In all cases the female thread of the mating components should have the lead thread de-burred or countersunk to avoid damage to the patch material upon assembly.

Thread Preparation

To obtain optimum patch performance both male and female threads should be in accordance with class 6g/h (metric) or class 2 a/b (unified).

Finishes

Pre-applied adhesives can be applied to most popular plated finishes, as well as polymer and organic coatings. Epoxy products should be avoided with Aluminium as the resultant reaction can cause assembly problems.

Scotchgrip® 2353

Uses a hardening product which is hydroscopic, and therefore contact with moisture (which may exhibit a whitening effect) prior to assembly should be avoided.

We currently process a range of Headed Components, Studs, Plugs and similar parts.

We can apply our coating to ferrous or non-ferrous materials (Steel, Aluminium, Brass or Stainless Steel and some plastic materials).

With our on site Plating Division we offer a complete Plate and Patch service.

This is a general guide to the products we currently process. We are able to process other components subject to evaluation.

Re-usability of micro-encapsulated adhesives is not recommended.

Pre-production samples are evaluated and then processed free of charge

PRE-APPLIED THREAD SEALANT

With production facilities throughout Europe, P.S.M Thread Locking and Sealing offers a consistent approach with Technical support, Applications Engineering and production facilities strategically located to support our diverse customer base.

Our pre-applied sealant products form a dry to touch coating that provides a highly efficient seal developed by compression of the sealant material between the mating thread flanks.

ADVANTAGES

- Instantaneous high pressure seal
- Unlimited adjustment
- Superior Torque/Tension relationship
- Plate and Patch service
- Replaces hand applied tapes or gaskets
- Re-useable
- High temperature resistance
- Controlled Patch position

PRE-APPLIED THREAD SEALANT PRODUCTS

A range of dry-to-touch non-reactive coatings applied to the threads of screws, bolts, fittings or special components, eliminating the need for hand applied tapes or liquid sealant.

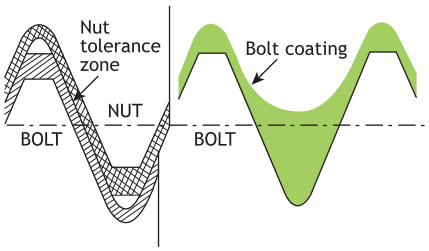
Applied as a water based suspension which is oven dried, finished parts are easy to handle and have no special storage requirements.

These processes offer high pressure sealing within the thread flank without any increase in removal torque. During assembly the coating is compressed, filling in all axial tolerances between the mating threads, creating a barrier against water, oils, air and gases at high pressure.

INDUSTRY APPROVALS

Our sealant product is approved to a wide range of industry standards including:- Ford WX201, Ford WSS-M18P12-A, Rover RES.22.FP.03, Varity Perkins PMS P.1.04. Plus many other industry approvals.

The Pre-Applied Thread Sealant Principle



A. The Pre-applied process consists of applying a thin film of sealant onto a defined area of the male thread surface.

B. The coating is non-toxic, dry to touch, ready to use and safe to handle.

C. Upon installation into the female threaded component, a compressive force is developed, forming a barrier against liquid, oils and gasses.

PRODUCT GUIDE

Product	Colour	Type	Max Patch Length	Standard Patch Length	Standard Patch Lead	Storage Life	Storage Conditions (Max)	Operating Temp (^{0}C)	Sealing Capacity (M10 Thread)	Coefficient of Friction	Re-Usability	Size Range
Precote® 5	White	Aqueous Mineral	50 mm	4-6 Pitch	1-2 Pitch Lead	4 Years	38 deg C @100%RH	-50 + 180	>50 Bar	0.11/0.13	Upto 5	M4-M30
Scotchseal® 4291	White	Latex	25 mm	4-6 Pitch	1-2 Pitch Lead	1 Years	38 deg C @100%RH	-25 + 150	>50 Bar	0.11/0.15	Nil	M4-M30
Dri-Seal® 506	Light Blue	PTFE Mineral	25 mm	4-6 Pitch	1-2 Pitch Lead	2 Years	38 deg C @100%RH	-50 + 150	>50 Bar	0.08/0.15	Upto 5	M4-M30
Miroseal® 204	Light Green	PTFE Mineral	25 mm	4-6 Pitch	1-2 Pitch Lead	2 Years	38 deg C @100%RH	-50 + 150	>50 Bar	0.08/0.15	Upto 5	M4-M30

We currently process a range of Headed Components, Studs, Plugs and similar parts.

We can apply our coating to ferrous or non-ferrous materials (Steel, Aluminium, Brass or Stainless Steel and some plastic materials).

With our on site Plating Division we offer a complete Plate and Patch service.

This is a general guide to the products we currently process.

We are able to process other components subject to evaluation.

RECOMMENDATIONS

Hole Preparation

In all cases the female thread of the mating components should have the lead thread de-burred or countersunk to avoid damage to the patch material.

Thread Preparation

To obtain optimum patch performance both male and female threads should be in accordance with class 6g/h (metric) or class 2 a/b (unified).

Finishes

A Sealant can be applied to most popular plated finishes, as well as polymer and organic coatings.

Customer free issue components

We would not recommend re-usability of these products on parallel threads. Our experience is that re-use up to 5 times is achievable on tapered threads, however, tests should be conducted on your specific application.

TUFLOK NYLON PROCESSING

The Thread Locking and Sealing division of P.S.M International offers Europe's widest range of pre-applied locking and sealing solutions, eliminating the need for secondary locking devices, hand-applied liquid adhesives, or sealing tapes.

The Tuflok Blue Nylon patch when applied is permanently fused onto the screw thread of the parent component, and increases the prevailing removal torque, allowing the screw to be locked in any position upon assembly.

ADVANTAGES

- Blue patch identifies true Tuflok
- Re-useable
- Anti-vibrational
- Engineered torque flexibility
- Variable patch length and position
- Eliminates secondary locking features such as nuts, washers, etc.
- Automatically locks in any position
- Non Curing
- Plate and Patch
- Resistant to chemicals like alcohol, petroleum, oil, kerosene, diesel fuel and hydraulic fluids

TUFLOK 180

Tuflok 180 is a blue nylon patch permanently fused to the screw thread. This process provides excellent vibration resistance and torque performance for all applications requiring controlled loading and re-usability.

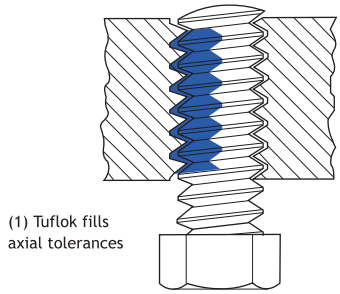
Tuflok is effective, whether or not the fastener is fully seated, making it ideal for applications where continual adjustment is required.

TUFLOK 360

Tuflok 360 gives full circumference coverage (completely around the thread) and is suitable for applications requiring a fully re-usable high pressure seal against liquid or gas.

INDUSTRY APPROVALS

Our Tuflok product is approved to a wide range of industry standards including:- DIN 267 part 28, BS 7795:1994, General Motors, Ford WA970, Rover RES.22.FP.02, Jaguar JFS.02.01.04. Plus many other industry approvals.



A. The Tuflok process consists of fusing the Blue Nylon 11 material onto a defined area of the male thread surface.

B. Upon installation into the female threaded component, the nylon material is compressed filling the axial tolerances between the threads (1).

C. The Tuflok process creates a strong metalto- metal radial loading on the flanks of the mating thread forms (2), which provides the locking action.

PRODUCT GUIDE

Product	Colour	Type	Max Patch Length	Standard Patch Length	Standard Patch Lead	Storage Life @ Ambient Conditions	Operating Temp (°C)	Sealing Capacity 3600 Patch	Re-Usability	Size Range
Tuflok	Blue	Nylon	40 mm	4-6 Pitch	1-2 Pitch Lead	Indefinite	-56 + 120	>15 BAR (M10 Thread)	>5	M1-M30

RECOMMENDATIONS

Hole Preparation

In all cases the female thread of the mating components should have the lead thread de-burred or countersunk to avoid damage to the patch material.

Thread Preparation

To obtain optimum patch performance both male and female threads should be in accordance with class 6g/h (metric) or class 2 a/b (unified).

Finishes

Tuflok can be applied to most popular plated finishes, as well as polymer and organic coatings.

Customer free issue components

Parts manufactured from non-ferrous material should be supplied free from any surface contaminants. Variations in material structure can effect heating capability of the part during processing, which may result in torque variation.

High installation speeds can create galling of the threads affecting product performance.

We currently process a range of Headed Components, Studs, Plugs and similar size parts.

We can apply our coating to ferrous or non-ferrous materials (Steel, Aluminium, Stainless Steel or Brass).

With our on site Plating division we offer a complete Plate and Patch service.

This is a general guide to the products we currently process. We are able to process other components subject to evaluation.

RECOMMENDATIONS

Thread Sizes		First Installation		First Removal		Fifth Removal	
BA	ISO Metric	Prevailing Torque Max.		Min.		Min.	
		IBF/IN	NM	IBF/IN	NM	IBF/IN	NM
8	2	2.5	0.28	0.1	0.01	1.0ozs	0.01
-	2.5	4.0	0.45	0.4	0.03	0.09	0.01
6	3	6.0	0.68	0.5	0.06	0.25	0.03
4	4	12.0	1.36	1.0	0.11	0.5	0.06
2	5	17.0	1.92	1.5	0.17	1.0	0.11
1/4	6	40.0	4.5	3.0	0.34	1.5	0.17
5/16	8	80.0	9.0	5.0	0.6	2.5	0.28
3/83/8	10	110.0	12.4	7.5	0.85	4.0	0.45
7/16	-	135.0	15.2	10.0	1.13	5.0	0.5
1/2	12	200.0	22.6	15.0	1.7	7.5	0.85
9/16	14	300.0	33.9	20.0	2.26	10.0	1.13
5/8	16	420.0	47.9	25.0	2.83	12.5	1.41
3/4	18-20	540.0	61.0	35.0	4.0	20.0	2.26
7/8	22	840.0	94.9	50.0	5.56	30.0	3.39
1	24	1080.0	122.0	80.0	9.0	40.0	4.52

Pre-production samples are evaluated and then processed free of charge

NYLTITE SEALING SOLUTIONS

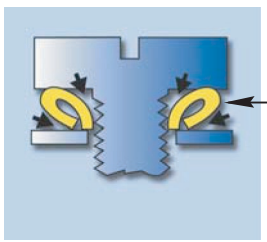
Nyltite from P.S.M International

Nyltite is manufactured from extruded thin wall tubing and is designed for applications where locking and sealing is required under the head of the screw. Nyltite can be supplied pre-assembled to fasteners of your specification. Tests have proved that Nyltite will provide superior sealing performance, as well as reducing joint failure caused by vibration. Nyltite headed/unheaded sleeves are available for electrical applications requiring a high degree of insulation or cable protection. Insulating spacers are also available.

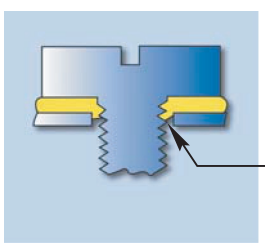
ADVANTAGES

- Seals and locks almost any type of headed screw
- Effectively locks and seals self-tapping screws
- Can be re-used
- Provides electrical insulation between screw and component assembly
- Also prevents electrolytic corrosion in the same area
- Provides sound and vibration isolation
- The seal resists petroleum products, salt water, hot oils, refrigerants,
- alkalies, diluted mineral acids and most solvents and chemicals

BEFORE COMPRESSION



AFTER COMPRESSION



NYPLAS BENEFITS

The Nyltite product does not need any particular preparation of the fastener or work piece and does not require any kind of adhesive.

The Nyltite seal or headed sleeves, combined with any compression fastener (screws, bolts and nuts, rivets, eyelets, pop rivets, nails) offers a cost effective and high performance seal over traditional sealing methods.

As an added advantage, Nyltite offers vibrational dampening through increased torque and against galvanic corrosion of dissimilar material.

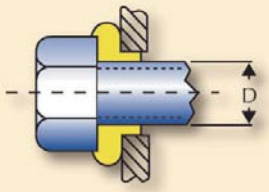
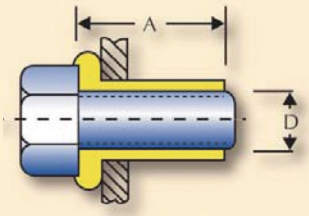
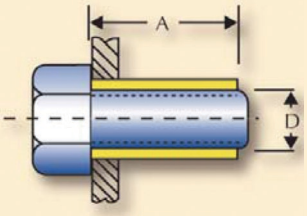
For applications which may be subject to ultra violet rays, it is recommended that Nyltite should be specified in black.

The Nylon interface eliminates damage due to surface chipping and crazing of the mating component.

The configuration of this kind of seal makes the nylon flow inwardly under compression, filling all the voids between the fastener and work piece.

TECHNICAL DATA

Material:	*Nylon*
Colour:	*Natural/Black*
Storage Life:	*Indefinite*
Operating Temp.:	*-560C + 1200C*
Re-usability:	*>5*
Installation Torque:	*Not applicable*
Sealing Capacity: (M10 thread)	*>15 Bar*

Seals	Headed Sleeves	Unheaded Sleeves
	 *A 25mm max*	 *A 25mm max*
D M2-M12 + 6BA-1/2”	**D M2-M12 + 6BA-1/2”**	**D M2-M12 + 6BA-1/2”**

SEATING TORQUES

Thread Size	M5	M6	M8	M10	M12
Nm	2.94	4.97	11.30	13.60	33.90
ibf.in.	26	45	100	120	300

RECOMMENDED CLEARANCE HOLE SIZES

BA	Unified	ISO Metric	REF. O/D		Min.		SLEEVES	
			Inch	mm	Inch	mm	Inch	mm
-	-	2	0.078	2.0	0.093	2.38	0.124	3.18
-	-	2.5	0.098	2.5	0.113	2.87	0.144	3.65
6	-	-	0.110	2.8	0.125	3.17	0.156	3.96
-	4	-	0.112	2.8	0.125	3.17	0.156	3.96
-	-	3	0.118	3.0	0.133	3.37	0.165	4.19
-	6	3.5	0.138	3.5	0.156	3.96	0.187	4.75
4	-	-	0.142	3.6	0.156	3.96	0.196	4.97
-	-	4	0.157	4.0	0.172	4.36	0.208	5.28
-	8	-	0.164	4.1	0.185	4.70	0.216	05.48
2	-	-	0.185	4.7	0.203	5.15	0.240	6.09
-	10	-	0.190	4.8	0.208	5.28	0.244	6.19
-	-	5	0.196	5.0	0.218	5.53	0.250	6.35
0	-	6	0.236	6.0	0.256	6.50	0.296	7.51
-	1/4”	-	0.250	6.3	0.271	6.88	0.312	7.92
-	5/16”	-	0.312	7.9	0.334	8.48	0.375	9.52
-	-	8	0.315	8.0	0.334	8.48	0.375	9.52
-	3/8”	-	0.375	9.5	0.394	10.00	0.437	11.10
-	-	10	0.394	10.0	0.413	10.49	0.456	11.58
-	7/16”	-	0.437	11.1	0.456	11.58	0.503	12.77
-	-	12	0.472	12.0	0.496	12.60	0.539	13.69
-	1/2”	-	0.500	12.7	0.523	13.28	0.562	14.27

Larger sizes up to 1” - details on request. For effective sealing with Cap Screws a counterbored hole is required.

NYPLAS PRE-APPLIED UNDERHEAD SALANT

Nyplas from P.S.M International

Nyplas is a plastisol (PVC) material, pre-applied coating under the heads of a variety of fasteners to provide sealing against water, moisture, dust, air and noise dampening.

ADVANTAGES

- Seals/dampens immediately upon assembly
- No secondary material required
- Eliminates the need for O-rings, gasket seals and sealant compounds
- Eliminates leak path
- Re-usable
- Non-toxic, assembler friendly
- Excellent shelf life; will not shrink or dry out with age
- Meets major automotive manufacturers' specifications
- Saves money and time
- Working temperature: (-40˚F to 300˚F) -40˚C to 150˚C

Company Name Specification	
GM	GM6086M - TYPE 3
GM	GM1131M - TYPE D
Ford	ESN 800688 - S100
Ford	WSK - M4G70C*
Daimler Chrysler	MSCD - 43
*** Except fogging**	

NYPLAS BENEFITS

Nyplas was developed to solve manufacturers' needs for a fastener that would seal and dampen without additional parts at assembly.

Nyplas can be applied to an extensive range of fastener types, such as rivet nuts, break-stem rivets and a wide range of screw type components. We currently process a range of Headed Components, Studs, Plugs and similar size parts.

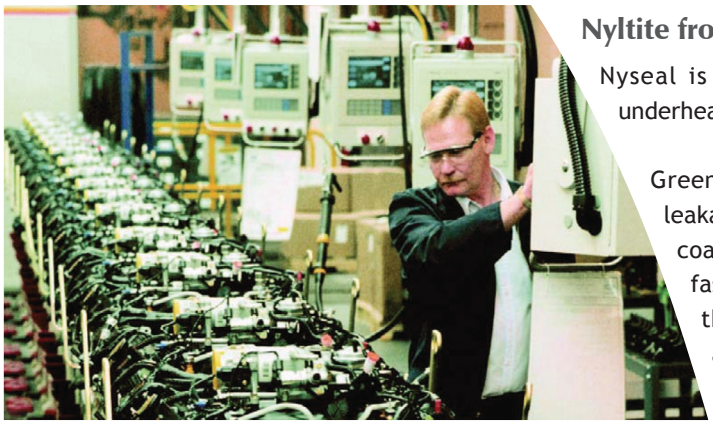
We can apply our coating to ferrous or non-ferrous materials (Steel, Aluminium, Stainless Steel or Brass).

This is a general guide to the products we currently process. We are able to process other components subject to evaluation.

Nyplas can be applied to most popular plated finishes, as well as polymer and organic coatings.

Parts manufactured from non-ferrous material should be supplied free from any surface contaminants.

NYSEAL PRE-APPLIED UNDERHEAD SALANT



Nyltite from P.S.M International

Nyseal is a patented pre-applied permanently fused fastener underhead sealing element.

Green-colored Nyseal creates a gasket-type seal, preventing leakage of fluids and gases under pressures up to 500 psi. The coating is permanently fused on the bearing surface of the fastener. As the screw is seated to its final position against the mating part, the Nyseal element compresses slightly and fills the void under the bearing surface of the head and countersink/counterbore.

ADVANTAGES

- Eliminates time-consuming in-house applications of O-rings, gasket seals and sealant compounds
- Will not work loose
- Eliminates the leak path
- Prevents galvanic corrosion between dissimilar materials
- Re-usable
- Highly durable
- NYSEAL's green sealing element will not shrink or dry out from age Resistant to chemicals like alcohol, petroleum, oil, kerosene, diesel fuel and hydraulic fluids
- Working temperature: maximum 66°C (150°F)
- Screw strength is unaffected
- Assembly ready

NYSEAL BENEFITS

Nyseal was developed as a solution to a need for a highly durable fastener sealing element that could perform under high pressure and was resistant to a wide variety of chemicals. It eliminates the need and cost of secondary application during the assembly process.

P.S.M engineers are available to assist in recommending the correct sealant solution for your application.

NYPLAS PRE-APPLIED UNDERHEAD SALANT

Nyplas from P.S.M International

Nyplas is a plastisol (PVC) material, pre-applied coating under the heads of a variety of fasteners to provide sealing against water, moisture, dust, air and noise dampening.

ADVANTAGES

- Seals/dampens immediately upon assembly
- No secondary material required
- Eliminates the need for O-rings, gasket seals and sealant compounds
- Eliminates leak path
- Re-usable
- Non-toxic, assembler friendly
- Excellent shelf life; will not shrink or dry out with age
- Meets major automotive manufacturers' specifications
- Saves money and time
- Working temperature: (-40˚F to 300˚F) -40˚C to 150˚C

Company Name Specification	
GM	GM6086M - TYPE 3
GM	GM1131M - TYPE D
Ford	ESN 800688 - S100
Ford	WSK - M4G70C*
Daimler Chrysler	MSCD - 43
*** Except fogging**	

NYPLAS BENEFITS

Nyplas was developed to solve manufacturers' needs for a fastener that would seal and dampen without additional parts at assembly.

Nyplas can be applied to an extensive range of fastener types, such as rivet nuts, break-stem rivets and a wide range of screw type components. We currently process a range of Headed Components, Studs, Plugs and similar size parts.

We can apply our coating to ferrous or non-ferrous materials (Steel, Aluminium, Stainless Steel or Brass).

This is a general guide to the products we currently process. We are able to process other components subject to evaluation.

Nyplas can be applied to most popular plated finishes, as well as polymer and organic coatings.

Parts manufactured from non-ferrous material should be supplied free from any surface contaminants.