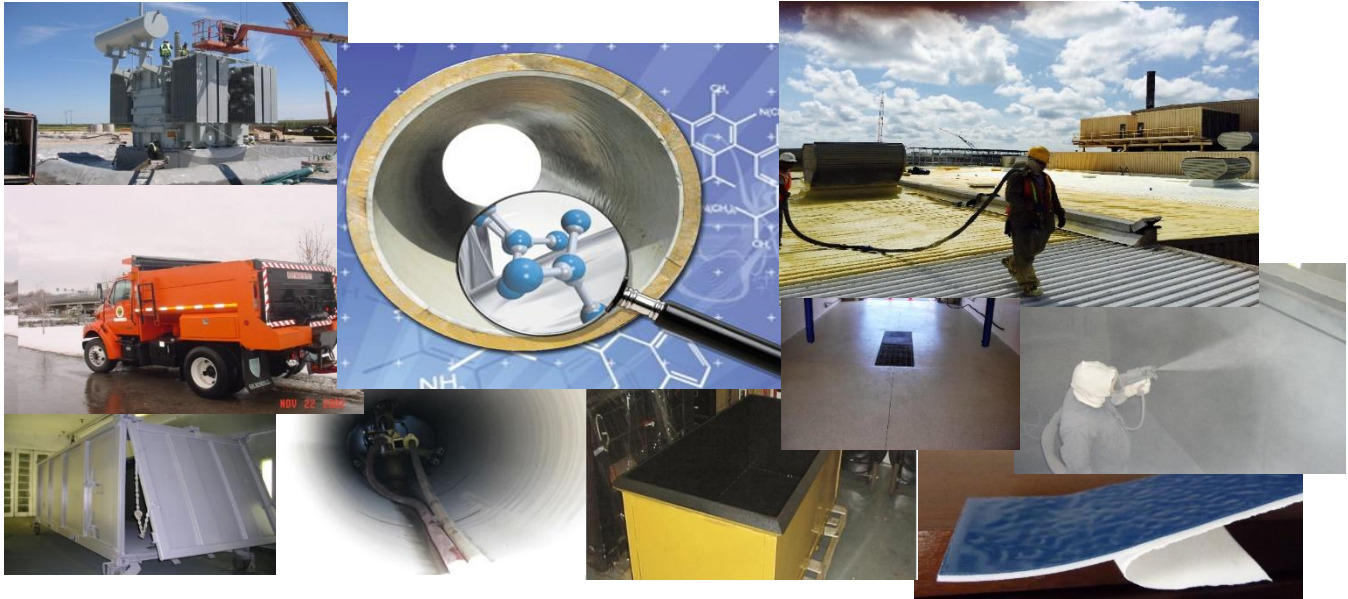


Polyurea- Advantages for Commercial and Industrial Coating Applications



InstaCote, Inc. has been involved with the development and manufacture of polyurea and water based coatings since 1992. In 2004 we made a corporate decision to expand our product lines to include polyaspartic or aliphatic floor coatings. All coatings are manufactured directly by us at our Erie, Michigan location. All coating products have been engineered by us for specific application needs as requested by our customers. Besides the wide array of coating products InstaCote manufactures we offer coating application services for our spray polyurea coatings. New products are constantly being developed and tested by our team and we will strive to update you on new products as they become available. Please visit our website at www.instacote.com to learn more about both our commercial and decontamination products.

InstaCote Inc. has recently made demonstrations to the Fukushima nuclear station in Japan using InstaCote products in assisting their cleanup. The sealing/coating capabilities of polyurea has been utilized by the nuclear industry for many years. This material can now be used in commercial applications such as dunnage/racks coating, foam backed pressure sensitive tapes, and roofing. A full listing of our products and applications can be found at www.instacote.com.

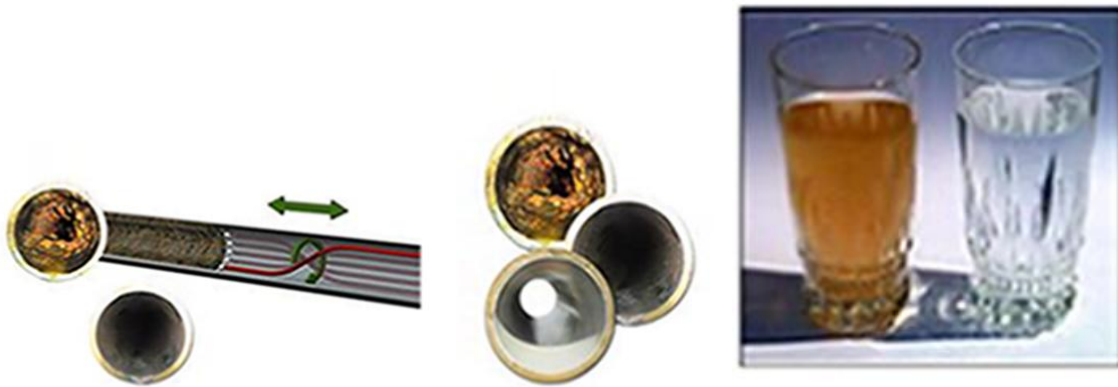
Polyurea- Advantages for Commercial and Industrial Coating Applications

What is Polyurea? Technically speaking polyurea is a 100% solids, plural component spray applied elastomer that is fast curing with exceptional physical properties such as flexibility, durability, and chemical resistance--similar yet superior to most polyurethanes. Polyureas are the best choice for

harsher environments which may be encountered when working in high impact/stressful applications where optimum performance for long term durability is required.

What are the advantages of polyurea over other coatings?

Surface hardness usually described as Durometer (Shore A/D scale). The higher the Durometer number the harder the surface. Typically a polyurethane used for applications as a pickup bed-liner would have Durometer range of 70 -75 Shore A. We have engineered several polyurea formulations ranging from 40-45 Shore A to 90-95 Shore A. InstaCote M-25 polyurea has a Shore A of 90-95 and is intended for demanding situations encountered in commercial and industrial applications. About the hardness of a skateboard wheel.



SIPP: Sprayed-in-Place Piping - Trenchless Technology is reconditioning underground water supply/wastewater pipe

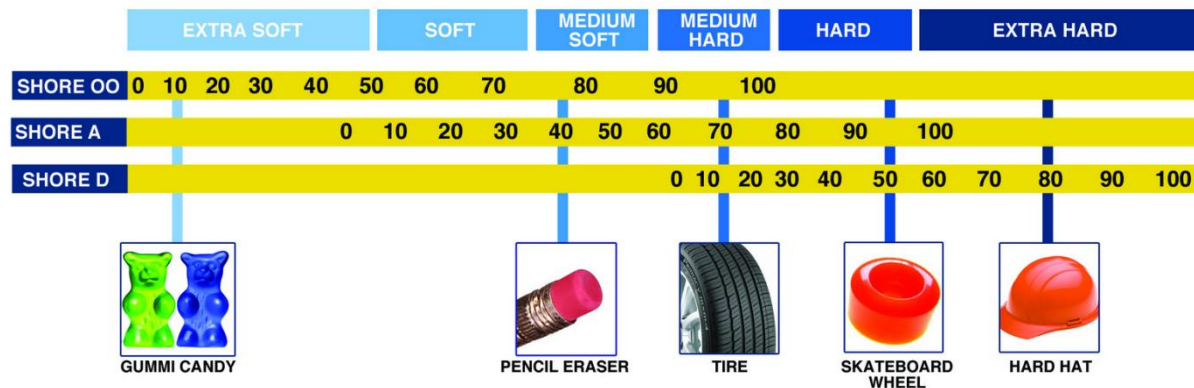
Moisture insensitivity/moisture barrier is a major advantage using polyurea which combine properties for rapid curing, imperviousness to ambient humidity/slight moisture in the substrate surfaces. Polyurethanes on the other hand, are very sensitive to both humidity and moisture and will react by giving off carbon dioxide gas causing foaming and pin holing leading to premature coating failure. Polyureas are resilient to water and have low permeability, which are ideal for moisture barrier applications.

Temperature tolerances are excellent with polyurea sprays which allow for fast cure times even at temperature extremes of 0°F up to +250°-300°F. Long term exposure may have an effect on performance and should be first tested. Polyureas have the advantage of having higher heat resistance than comparable formulated polyurethane. Polyureas reactivity is typically fast (3-5 seconds) and cures well on cold surfaces which would be well suited for extreme plant environments.

Environmentally polyureas offer no VOC (Volatile Organic Compounds) emissions with little to no odor making them both compliant with the strictest VOC and Environmental Regulations.

Adhesion using polyurea demonstrate excellent adhesion characteristics, however, we recommend some surface preparation and/or the application of a primer for best adhesion.

Shore Durometer Hardness Scales



ADVANTAGES OF POLYUREA COATINGS - Aromatic Spray-on polyureas

Polyurea coatings have exceptional physical properties such as high durability, moisture insensitivity, temperature tolerance, and resistance to salt spray conditions

- Higher heat temperature tolerances (-65°F to 350°F)
- No VOC's for compliance to emission regulations
- Excellent adhesion characteristics to most substrates. Primers have been developed to enhance adhesion on hard to stick surfaces
- Fast cure time after application (in seconds)
- Non-marring coatings for Class A surfaces
- Polyureas are engineered to have strength with flexibility (up to 800% elongation) unlike other coatings which may break with any movement/vibration
- InstaCote manufactures its own coatings at our Erie, MI. to ensure product quality. Our coatings come in different coating hardness's known as durometer to suit different customer needs. They range from a soft 40 Shore "A" durometer to a harder plus100 Shore "A"
- Damaged coating surfaces are fixable rather than requiring complete and costly recoating through our patch kit technology we developed for the Nuclear Industry.
- Polyurea coatings have good heat transfer properties (insulation) which mean that coated surfaces maintain a cooler surface by several degrees than uncoated surfaces
- Coating thickness is determined by customer needs
- Different coating textures are available from smooth to a stipple or orange peel as desired for improved functionality such as anti-skid or appearance
- High chemical resistance to most water/petroleum based products
- Our polyureas are developed to maintain superior long term UV protection using our UV package additives for extended color and gloss retention over a long period of time
- RAL matching may be available. Standard colors offered are Light Gray, Dark Gray, Black, Med. Green, Medium Blue, Tan and Safety Orange
- Polyurea coatings, unlike many coatings retain most of their physical properties over extended time periods as compared to epoxy, plastisol dips and powder coatings which become brittle or fade within a couple years or less if subject to vibration/trauma.



ADA Truncated Domes: Polyurea either inserted in original pour or glued-in-place--ideal for the repair of torn domes

Coating Product Properties, Uses and Applications Comparative Sheet

M-25 is a spray-on aromatic polyurea that is applied through a heated plural component spray system. The M-25 product is a durable coating originally developed to protect Class “A” automotive part surfaces by providing non-marring coatings on metal shipping racks, and containers. M-25 is a non-marring coating that will not abrade or damage Class A surfaces. The physical properties of M-25 are a 90-95 duro-Shore “A” surface hardness, elongation of 350-375%, 2,800-3,000psi tensile strength, and a 400pli tear strength rating

IC-800 is a spray-on aromatic polyurea that is applied through a heated plural component spray system. The IC-800 is a durable more flexible, grippy coating which has been used as a protective coating for shipping racks in the glass industry, horse stable pads, and automotive applications. IC-800 like the M-25 is non-marring and will not abrade Class A surfaces. Additionally IC-800 offers a gripper surface that may be desirable with certain applications. The physical properties of IC-800 are a 70-75 duro-Shore “A” surface hardness, elongation of 800%, 1,650psi tensile strength, and a 300pli tear strength rating.

IC-SE FR is a spray-on aromatic polyurea that is applied through a heated plural component spray system. IC-SE FR offers similar properties to our other aromatic Polyureas but also includes a fire retardant package. The IC-SE FR has been developed and used as a coating to the IP-1 Packaging Systems which was developed by us to handle contaminated materials. The physical properties of IC-SE FR are an 85-90 duro-Shore “A” surface hardness, elongation of 280-325%, 2,500-2,700psi tensile strength, 410pli tear rating, and a fire retardant package.

HA-100 is a spray-on hot aliphatic polyurea that is applied through a heated plural component spray system. The HA-100 was developed long term outdoor use on playground equipment, and for coatings to Police K-9 car carriers. The physical properties of HA-100 are an 85 duro-Shore “A” surface hardness, elongation of 500%, 2,000psi tensile strength, and a 430pli tear rating.

M-35 is a spray-on hybrid polyurea that is applied through a heated plural component spray system. The M-35 has been developed with superior physical properties and corrosion resistance for pipe linings, pump stations, wet wells, digesters, clarifiers, manhole lings, and other water/wastewater

system coatings. The physical properties of M-35 are a 72 duro-Shore “D” surface hardness, elongation 10-25%, flex modulus +250,00psi tensile strength, and a 400pli tear rating.

Product	Tensile Strength	Tear Strength	Elongation	Hardness Shore-A
AROMATIC POLYUREA - heated plural component spray				
M-25	2800-3000 PSI	400 PLI	350-375%	90-95
IC-800	1650 PSI	300 PLI	800%	70-75
IC-SE FR (fire retard.)	2500-2700 PSI	410 PLI	280-325%	85-90
GRP-45	1200 PSI	75 PLI	600%	60-65
M-12	+1500 PSI	568 PLI	650-700%	40-45
IC-202/LS 17 STRUCTURAL	278,870 PSI	400 PLI	10%	+130
IC-171	2800-3000PSI	500 PLI	650 %	+95
ALIPHATIC POLYUREA - heated plural component spray				
HA-100	2000 PSI	430 PLI	500%	85
SBR-10	6500 PSI	100 PLI	75%	+100
HYBRID POLYUREA				
IC 85	560 PSI	210 PLI	255%	80-90
M-35	278,870 PSI	400 PLI	10%	72

IC-CF 40 and CF 85 are fast setting, flexible, self-leveling two part polyurea coatings that are applied using either an air assisted or mechanical dual cartridge dispensing gun. Both CF 40 AND CF 85 were developed to be used as joint and crack fillers in high traffic or high impact areas. The CF 85 is intended for in-door use while the more flexible CF 40 is for outdoor applications. The physical properties of CF 40 are 65-70 duro-Shore “A” surface hardness, elongation 600%, 200psi tensile strength, and a 75pli tear rating. The physical properties of CF 85 are 80-90 duro-Shore “A” surface hardness, elongation 255%, 560psi tensile strength, and a 210pli tear rating.

SBR-10 is an **aliphatic polyurea** or more commonly called **polyasparticcoating** has higher chemical resistant and UV protection for outdoor coating and can be cold applied by brush, roller, or non-heated spray rather than through a heated plural component spray system. The SBR-10 was first developed as a floor coating to compete with epoxy coatings, but have been used to re-line factory steel mix tanks, bag-house filtration units, and wood handicap access ramps. The SBR-10 series of products include the basic SBR-10, the SBR-10 T and TF which has been engineered with additives for thicker build layer or for vertical wall applications and a flexible version where surface movement might be an issue. Special additives may also be added into the formula to provide anti-skid surfaces if needed. The physical properties of the SBR-10 products are a plus 100 duro-Shore “A” surface hardness, elongation 75-125%, 6,000psi tensile strength, and a 100pli tear rating.



Coated Car Wash Floor – In-Process Scrap Tub (noise reduction) – Cardboard box Coated for Funeral Flower Container

InstaCote Polyurea Coating Comparison

M-25 and IC-800 are your more standard types of polyurea coatings used in the shipping rack industry. GRP-45 and M-12 are a much softer durometer originally developed for the playground and medical fields.

HA-100 is a hot spray aliphatic polyurea while the SBR-10 is cold mix roll on aliphatic coating. Aliphatic Polyureas are typically recommended for longer UV-stability with outdoor applications and superior durability is required.

M-35 is a structural polyurea hybrid coating with extremely high tensile Strength (278,000psi) for coating applications such as underground pipes.

IC-85 is a newly engineered pour-able polyurea material which is ideally suited for mold making applications.

Available colors on all coatings – Black, med. Gray, dark gray, blue, green, safety orange, and brown



WRAP-COTE by InstaCote, Inc.



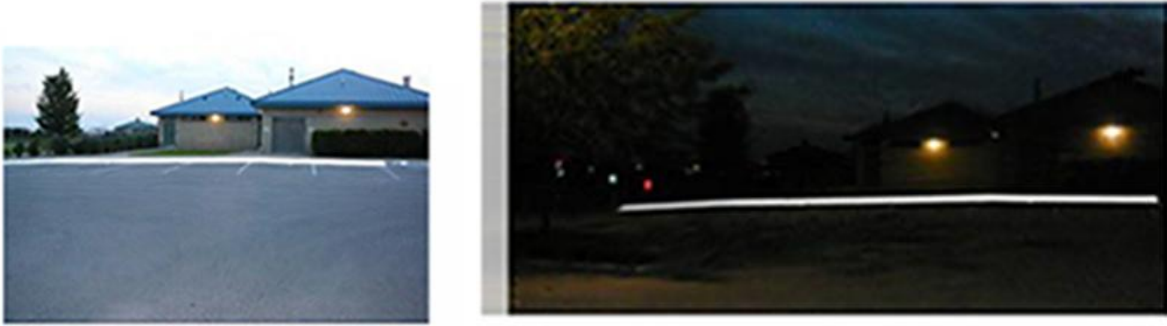
***Wrap-Cote:** Pressure sensitive sticky Polyurea w/ foam backing—good for shipping racks, worktables—tape ranges 10-80mils thickness w/ 1” size to 48”X60” — custom sizing available*

WRAP-COTE which is manufactured by InstaCote, Inc. uses a high quality 1/16” foam backed pressure sensitive tape coated with our polyurea coating. WRAP-COTE peel and stick was developed to provide easy to apply durable protection and is available in different hardness and colors.

The acrylic adhesive cross linked polyethylene backed foam transfer tape we use has been tested for adhesion on most metal surfaces. Powder coated surfaces are by nature slick and may not allow proper adhesion without additional surface preparation. For best results on most metal surfaces we would recommend cleaning the surface with isopropyl alcohol (IPA) and let dry prior to applying the tape. In cases where there is a heavier contamination on the surface we suggest using a more aggressive degreaser or cleaning solvent such as MEK or Acetone.

Polyurea coatings used by InstaCote are developed and blended at our Erie, MI Plant. Our polyurea coating provides exceptional physical properties such as non-marring, UV stable, chemical resistant, high flexibility (300-800% elongation) and long term durability.

WRAP-COTE by InstaCote offers a standard coating thickness 30- 40 mils with a 70-75 a Duro Shore hardness coating over the 1/16” foam. Thicknesses greater than 40 mils are available based on customer needs. Our polyurea coatings can be ordered in several available colors, and tape sizes can be cut to size.



Curb Coated SBR10 Fluorescent Beads glows in both Daylight -- Nighttime

FAQ on using polyureas and Polyaspartics

Q. What is the difference between spray-on polyurea and roll applied polyaspartic coating material, its application, and from a performance standpoint?

A. The spray-on polyurea is a hot applied aromatic or aliphatic fast setting aspartic ester which is applied through a plural component spray system. The roll-on polyaspartic coating is a two part cold mix material that can be applied by roller, brush or through a sprayer and is slow setting usually 1-1/2 to 2 hours.

Q. If a spray-on polyurea is used for say something like road construction program what is the required cure time needed before vehicular traffic is permitted, and similarly what if a polyaspartic coating would be used in a similar application?

A. Cure time for a spray-on polyurea is seconds with traffic use within 1 hour. The polyaspartic cure time is 1-1/2 to 2 hours with vehicle traffic in 24 hours.

Q. How long does polyurea or polyaspartic coatings last?

A. Both are very durable and last for years (5 to 10 years).

Q. Can either of the above type coatings be used for clean-up sites for such things as asbestos's or are there better products to use?

A. CC Products such as CC-Wet, CC-Strip, CC-Fix and CC-Demo are used to stabilize contamination until a more permanent solution is used. The use of spray-on polyurea can be used to encapsulate contaminated surfaces for long term duration and has been used in the nuclear industry clean-ups.

Q. What amount or type of preparation is needed when using any coating products for any type of contamination clean-up?

A. Depending on the site inspection of a potential location a pre-treatment with such materials as CC-Wet may be required to keep contaminated particulates from going airborne.

Q. What do you do if you need to recoat a previously coated surface at a later time due to damage, premature failure of the coating surface, or other reasons, and what if any are the limitations for using the ReCoat Primer?

A. Using either a hot spray-on polyurea or a cold roll-on polyaspartic there is a recoat window. For the polyurea you will need to re-spray within 4 hours or you will need to apply our ReCoat Primer for proper bonding. With the Polyaspartic reapplying or re-coating should be within 24 hours after which you will need to either rough up the surface or apply our ReCoat Primer for adequate

Q. What is your recommendation for using primers and is it needed for all coating jobs when recoating a previously coated surface.

A. No. polyurea coatings after the 4 hour window you would need to apply a primer, but for Polyaspartic coatings you prepare the surface by either rough up the surface by properly grinding or using a primer.

Q. What is the Life Expectancy on concrete or other substrates treated with a polyurea or polyaspartic coatings?

A. Years. Both polyurea and Polyaspartic Coatings have superior physical properties and chemical resistance and are engineered extended usage under extreme conditions.

Q. How are the various coating materials applied and what equipment may be needed? A

A. The spray applied polyurea Coatings are applied using a heated plural component spray system using specially designed spray guns. The Polyaspartic Coatings can be spray applied, brush or roll applied using minimal equipment.

Q. What are the best products, procedures, or additives that can be used to get an anti-skid surface on a surface for foot or vehicle traffic?

A. Additives with different grit sizes such as white aluminum oxide, polypropylene beads or pumice can be suspended in the polyaspartic to provide an anti-skid surface. Other techniques such as broadcasting over a coated surface have been used but provide less desirable even dispersion of the anti-skid material.

Q. To what types of surface materials can you apply polyurea or polyaspartic coatings too?

A. Most surfaces are coat-able but may require special primers to enhance adhesion.

Q. When either a porous or non-porous surface is coated what are some of the outcomes that can be expected such as poor adhesion and what can be done to minimize or correct this type issues if they occur and if they are deemed critical and need to be fixed?

A. In some cases surface contamination such as petroleum based products, trapped gases, or moisture may cause conditions such as pin-holing, eruptions, or even in extreme cases pre-mature coating failure. In the case of pin holes, eruptions, or sporadic failure the effected section may need to be removed or the eruptions removed before re-applying a coating. Before re-applying a coating, however, ever effort should be made to determine the cause of the failure in case more extreme preparation measures are necessary.

Q. What types of facilities or surfaces can polyurea or polyaspartic coatings be used on or applied too?

A. Both polyurea and Polyaspartics can be applied to many various substrate materials such as metal, wood, concrete, plastics, brick, cinder block. The types of municipal applications or facilities that could benefit from coatings would be Salt Storage Bins, Water and Waste Water Treatment Facilities, Water Towers, Compost Facilities, Municipal Fleet Equipment, Street Islands and curbing, Containment Walls, Floor coating.



City of Toledo: Salt Truck coated in 2002 still in good condition today – Bench: Coated with SBR10 electrostatic polyurea – WrapCote on wire basket

Please call at [248-650-3944](tel:248-650-3944) for further information or to schedule a demonstration.

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