



***PRODUCT
REPAIR
MANUAL***

2014 VERSION D

PRODUCT REPAIR MANUAL - Version D

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PLEASE READ BEFORE MAKING REPAIRS.

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Section 1: Repair Preparation

General Repair Information

Please read these instructions carefully and follow them exactly to obtain a good repair. Failure to follow these instructions or poor repair workmanship can lead to failed repairs and/or more damage to the item.

Warning

If repairing a fuel tank, make sure no flammable chemicals are present in the item being repaired.

Caution

Any tank being used to contain potable water must be sterilized after a repair due to the possibility of contamination from solvents. See section *Potable Water Repairs* for detailed instructions.

Marking Leaks

If there are small leaks or scrapes that might be difficult to locate when the item is drained, mark them with a black felt pen or white wax pen prior to draining.

Repair Failures

Repairs will likely fail if:

- The area to be repaired is not perfectly clean and scrubbed to a matte finish before beginning the repair (except when using clamps).
- The repaired area leaks fuel or other chemicals during the repair.
- Repairs are attempted during wet or cold weather.

Section 2: Emergency/Temporary Repairs

Using a Wooden Screw

Tools and Materials Required

- Wooden screw
- Small knife

Small holes that are leaking may be temporarily plugged using a threaded wooden screw which is provided in the repair kit. Simply insert the plug into the hole, turning clockwise until the plug is tight and the item stops leaking.

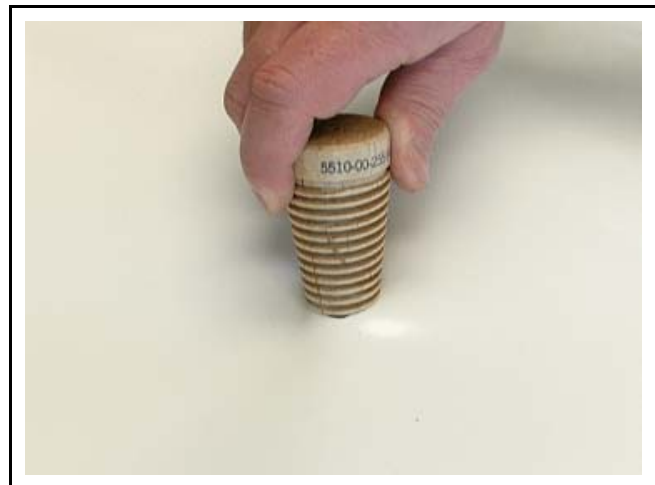


Wooden screws can be used to temporarily repair minor leaks.

Important Note

The wooden screw method is best used on "round-shaped" holes. If the tear is "slit-shaped" then use a knife to make the opening more round. By making the tear more round, you will not damage the fabric as much and you will have less to trim when making permanent repairs.

1. INSERT the screw and turn clockwise until tight.
2. The screw should be REMOVED, once the container is empty, and once you are ready to make permanent repairs using glue or a hot air gun.



Using Sealing Clamps

Tools and Materials Required

- Clamp (correct size needed)
- Small knife

Repair clamps are used for an emergency repair to prevent the loss of liquid through large rips or holes up to 6" in size. For example, if a vehicle accidentally backed into a item and caused a 3" (76 mm) long rip, a repair clamp could be inserted to stop the loss of liquid.

Repair clamps are only used for temporary repairs. The damage should be permanently repaired with a patch when the item can be emptied.

Important Note

Leaving the string on makes it easier to remove the repair clamp when placing a permanent patch on the item.

1. **SELECT** the largest clamp that will just slip through the hole in the item. The size of cut or hole will determine the size of the sealing clamp to use.

- For a cut or hole up to 2" (5 cm), use a 3" (7.6 cm) clamp.
- For a cut or hole up to 4" (10 cm), use a 5" (12.7 cm) clamp.
- For a cut or hole up to 6" (15 cm), use a 7.5" (19 cm) clamp.

Caution

If you are repairing a filled tank, use caution if deciding to enlarge the slit to insert a clamp. It is very easy to make the slit too large.

2. Keeping hold of the string, SLIP one half of the repair clamp through the hole as indicated.



3. PULL the bolt up through the hole. TURN it until the clamp lines up with the hole.



4. PLACE the top of the clamp over the bolt.



5. TIGHTEN the nut by hand.



Caution

Tightening the nut with tools may break the bolt away from the lower clamp. Overtightening can also deform the clamp and cause leaks.

Section 3: Permanent Repairs

Using Glue

Tools and Materials Required

- Roller
- Scissors
- Patch material
- Glue
- Solvent
- Abrasive pad
- Weight bag

Warning

Glue should not be used on potable water storage containers.

Important Note

Try a test repair before attempting to repair the item. It is much harder to fix a repair once a failed attempt has been made as the hardened glue is difficult to remove.

Before commencing repairs using glue, the following should be noted:

- The weather should be warm (above 60 deg. F or 15 deg. C) and dry.
- If the glue and patch are not properly placed, air bubbles will be created between the glue and patch.
- The patch should be weighed down for 8-12 hours.
- The repaired item should not be used before the glue has set.

Important Note

Dura-Seal glue has been designed specifically for the SEI family of fabrics. The shelf life of this adhesive is about one year. Fresh adhesive can be obtained directly from SEI Industries Ltd.

Warning

Glue vapours are highly explosive! Explosive vapours may occur causing fire and/or injury. Keep away from all sparks, flame, lighters or cigarettes.

Solvent and glue are both extremely hazardous. Use solvent and glue under well ventilated conditions only.

When using a warm air fan, either use one which is rated EXPLOSION PROOF or make sure that there is a steady flow of air past the work area to remove fumes as they are generated.

Repairing in High Humidity

In conditions of high humidity, a proper technique is essential for securing the bond strength desired as the presence of surface moisture can destroy the effectiveness of the cemented bond.

The evaporation of solvent from the adhesive may reduce the surface temperature below the dew point resulting in condensation of water vapour on the surface of the adhesive. This is often visible as fogging or a milky white appearance on the surface.

The use of a solvent to clean the surface prior to cementing can also reduce temperatures below the dew point.

To overcome the high humidity problem, raise the temperature of the patch area. This can be accomplished with a warm air fan.

Applying the Glue

Small scrapes, damaged fabric **coating** or pinholes, which are not leaking, can be repaired with glue only. They do not require a patch. (A small scrape is defined as damage to the outer fabric coating only. A pinhole is defined as a small puncture that is not leaking.) However, damage to the base fabric must be repaired with a patch.

1. FILL the weight bag with water prior to beginning repairs.
2. CLEAN the area to be repaired with an abrasive pad dampened with solvent. Remove all traces of masking tape, if previously used. If possible, place a piece of masking tape on the back side of the item being repaired.
3. PAINT the damaged area with glue. Use a thick coat of glue, overlapping the edges of the repair by 1" (25 mm). Be sure that the edges are well coated. A damaged coating should be given two coats of glue. Apply the second coat within four hours of the first coat.



Apply masking tape on the backside of tear.



Squeeze glue around tear and spread with fingers.

Important Note

Allow repair to harden for 24 hours at room temperature before using the item.

Gluing with Patches

If liquid is escaping or there is dampness around the damaged area, the item must be drained. If the damaged area is still dry, it will be possible to obtain a good bond without draining the item.

Any loose coating should be cut back with scissors. Trim to a point where there is a solid bond between the reinforcing fabric or scrim and the coating.

1. **SUPPORT THE DAMAGED AREA** on a flat, solid platform. If the item is drained, the damaged area should be supported above the rest of the item. This allows residual liquid to drain away from the damaged area. This platform should be strong enough to support the fabric (flat) and allow the patch to be rolled once it is in place.



2. **SCRUB THE DAMAGED AREA** with an abrasive pad dampened with solvent (isopropyl rubbing alcohol is recommended). Scrub vigorously to remove the cured surface. The area should be clean and dry with a dull matte finish.



Caution

Solvent will damage the fabric if too much is used or if the fabric is left exposed to solvent residue.

3. Wipe with a rag, dampened with solvent, to remove any residue from cleaning. Check to see if the area is totally clean and all coated surfaces and edges are dull. If not, repeat the cleaning. This is critical for a good glue bond.

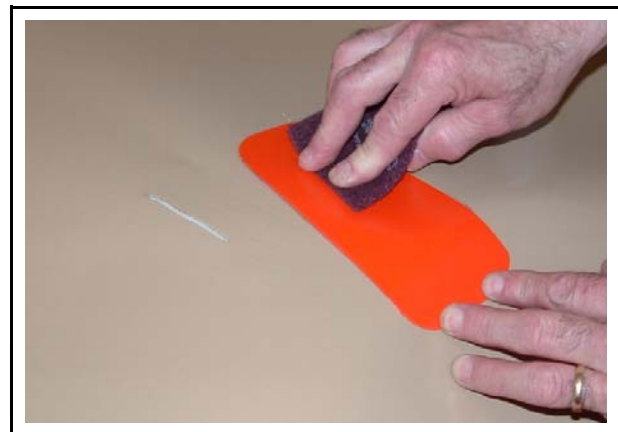
Cutting the Patch

1. **CUT A PATCH.** The patch should be at least 2" (50 mm) larger in every direction from the damaged area. A round patch is recommended but, if a rectangular patch covers the damage better, then round all corners.



The color of patch will vary, depending on the product repair kit.

2. **CLEAN THE PATCH** by scrubbing with a pad dampened with solvent. Rub vigorously to remove the gloss from the fabric. Clean both sides of the patch, as it is easy to get the patch turned over during installation. The patch should also be cleaned on the outside since it will be painted with glue later.



Applying the Patch

1. APPLY THE DURA-SEAL GLUE to the patch and damaged area. WAIT 30 MINUTES (at 75 deg. F or 22 deg. C) for some of the solvent to evaporate from the glue. The glue should become thicker but still be quite wet. If it has been allowed to dry too long, give both sides another thin coat. If the glue has dried too long, it will be difficult to avoid entrapping air bubbles in the bonded joint.

2. PLACE THE PATCH AND ROLL IT DOWN with the roller. Place the centre of the patch down first, then roll it out towards the edges with the roller. This expels trapped air. Once the patch is rolled down, do not let it lift up. This will prevent air from getting under the patch which causes a weak bond.



3. If the item is sloped during the repair, TAPE THE PATCH IN PLACE while holding it down. This stops the patch from sliding away from the damaged area.

4. WEIGH DOWN THE PATCH. Place a plastic cover sheet over the patch followed by a weight bag for 12 hours at room temperature. The item can then be moved but should not be filled until the glue has cured for 24 hours. The weight bag should hold the patch tight against the item while the glue sets. The plastic cover sheet will prevent the glue from sticking to the weight bag.



5. If the patch will be subjected to abrasion after 24 hours, paint over the patch with glue. Painting the patch also provides protection from ultra violet light and weather. Allow the bond to harden for 24 hours at room temperature before using the item.

Using Other Glues

If you do not have any Dura-Seal available, there are two other glues that can be used and are typically easy to purchase locally.

1. Loctite 495 can be used on Chem-Shield fabric to provide a quick patch repair but it will make a long term repair difficult at a later date as all 495 glue must be removed before applying Dura-Seal. This can prove to be a time-consuming, stubborn task.

Warning

Loctite 495 carries the following warning. Irritating by inhalation. Eye irritant. Combustible liquid. Contains cyanoacrilate ester which may cause allergic skin reactions. Skin contact through clothing may cause burns. Use adequate ventilation in case of eye or body contact. Flush with water. Get medical attention for eye or internal contact.

2. The other glue option is 3M's 420 glue which has the advantage of creating a more permanent repair. If using this glue, follow the same instructions in this manual as for Dura-Seal adhesive.

Section 4: Hot Air Gun Repairs

Using the Hot Air Gun

On most items, hot air gun patching is the preferred method because it provides the most durable, permanent repair possible.

Tools and Materials Required

- Patches
- One plastic hand-held roller
- One hot air gun, Steinel HL 1800 E or equivalent: 120 V-1500 W (800 to 1100 deg. F, 450 litres per min.)
- One wide surface nozzle
- Isopropyl alcohol
- Scissors

Warning

It is extremely dangerous to use a hot air gun in the presence of flammable fumes such as gasoline or paint thinner. There is a high risk of explosion and/or burns.

Warning

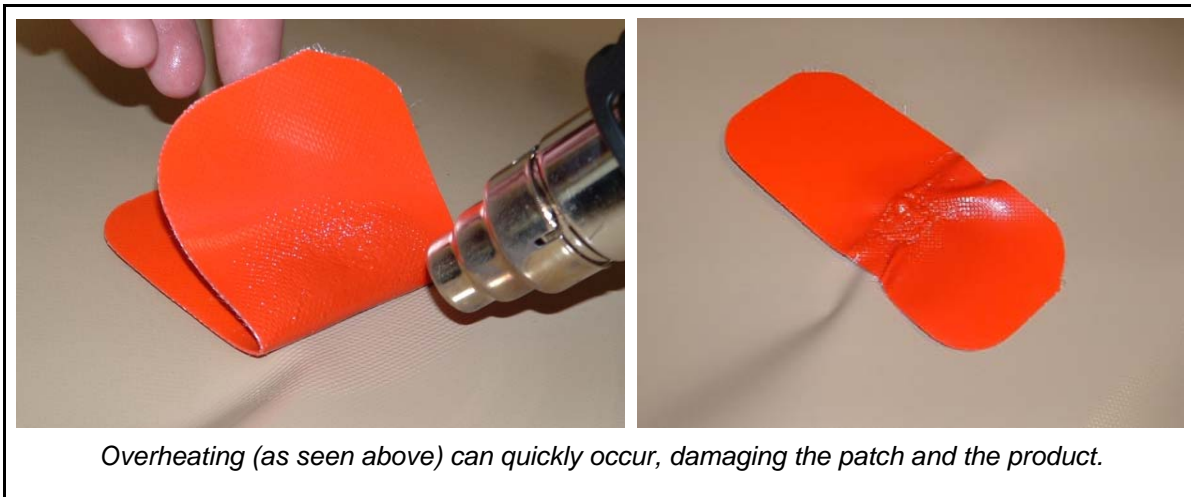
Injury, especially to hands and fingers, can occur when using a hot air gun. Most welding will occur at temperatures of 800-1000 degrees. Wear gloves to protect skin from overheating, burning and blistering.

Hot Air Gun Procedure

1. In a well-ventilated location, CLEAN the area to be repaired as well as one side of the patch with an abrasive pad. Wipe down the repair area and patch with isopropyl alcohol.
2. MOUNT a wide surface air nozzle on the hot air gun so as to direct the heat flow in a large pattern. Turn the power ON, adjust the temperature in the low range first and let the hot air gun warm up. Increase the temperature as required during the operation. **DO NOT OVERHEAT OR BLACKEN THE FABRIC.**

**Caution**

Overheating can occur quickly and can damage the product.



Overheating (as seen above) can quickly occur, damaging the patch and the product.

3. Starting from the centre of the patch (held down by the roller), concentrate the heat flow equally to patch and fabric. **APPLY** a light pressure with the roller when the fabric starts melting. This can be seen as small bubbles. **DO NOT OVERHEAT.**



4. **ROLL** the patch down to fuse it to the fabric, moving roller and gun simultaneously. Repeat on the unfused portion of the patch. Let the repaired area cool down. Attempt to peel off at the edges with your fingers. If there is even a slight peel, repeat the operation locally. Otherwise, the repair is finished.

Section 5: Potable Water Repairs

Tank Sterilization Procedure

Warning

If the tank contained any water while being repaired, the evaporating solvent may leave a toxic residue in the water. Tanks used for drinking water **MUST BE STERILIZED IMMEDIATELY BEFORE USE.**

1. Prepare a sterilizing solution by mixing 2.4 fluid ounces (72 ml) of household bleach (6% sodium hypochlorite) in 2 Imp. gallons (2.4 U.S. gallons or 9 litres) of water. This solution will treat 15 Imp. gallons (18 U.S. gallons or 68 litres) of water in the tank.
2. The bleach solution should be mixed outside the tank to be sure the bleach is well blended.
3. Add one Imp. gallon (1.2 U.S. gallons or 4.5 litres) of this sterilizing solution for each 15 Imp. gallons (18 U.S. gallon or 68 litres) of water. Continue until the tank is 10% full to ensure the sterilization solution is in contact with all areas of the tank.
4. Allow the tank to sit for three hours. Make sure there are no air pockets in the tank. Any entrapped air will prevent the solution from contacting the tank surface.
5. Drain the solution and flush several times with potable water.
6. A taste of chlorine may remain. This can be reduced by adding vinegar to the rinse water and allowing it to sit in the tank. If you do this, complete one final rinse with clean water (no vinegar).

Section 6: Repair Kits

Repair Kit Lists

Important Note for All Kits and Products

If you require a repair kit with more components, then order any of the four repair kits. Just remember to order it with the specified patches for your product.

Bambi Repair Kit 003613 (no glue)



| PART NUMBER | DESCRIPTION | QTY |
|-------------|---------------------------------|-----|
| 003134 | BAG, TOOL, NYLON | 1 |
| 003661 | PRODUCT, REPAIR, MANUAL | 1 |
| 003608 | BAG, WEIGHT, REPAIR | 1 |
| 003064 | PAD, ABBRASIVE | 2 |
| 003071 | ROLLER, SEAM, 1-1/4" | 1 |
| 003074 | SCISSORS | 1 |
| 002383 | BAG, ZIPLOCK, 9" X 12", .2M | 2 |
| 004502 | CLAMP, REPAIR, SMALL, (2" HOLE) | 1 |
| 008905 | PATCH, FABRIC, 32OZ, BAMBI | 3 |

This repair kit is recommended for the following products:

Bambi buckets; small models 6072-1821, medium models 2024-4453, large models 5566-9800.

Mini Repair Pocket Kit 004957 (no glue)

| PART NO. | DESCRIPTION | QUANTITY |
|----------|--|----------|
| 003662 | MANUAL, REPAIR | 1 |
| 003612 | POUCH, REPAIR | 1 |
| 003064 | PAD ABRASIVE | 2 |
| 003074 | SCISSORS, SS | 1 |
| | PATCHES AS SPECIFIED ON SALES ORDER | |

This repair kit is recommended for the following products:

ER tanks, Flexpacks, GR Mfg. tanks, Hazmat tanks, Insta-Berm, L-Rod berms, Onion tanks, Ride-Side berm, Stilwells, TCMs and gravity-feed funnels.

Tank (Small) Repair Kit 003610 (no glue)

| PART NO. | DESCRIPTION | QUANTITY |
|----------|--|----------|
| 003661 | MANUAL, REPAIR | 1 |
| 002379 | BOX, TOOL, 16" X 8" X 8", PLASTIC | 1 |
| 003608 | BAG, WEIGHT, REPAIR | 1 |
| 003064 | PAD, ABRASIVE | 2 |
| 002383 | BAG, ZIPLOCK, 9" X 12", 2M | 2 |
| 003071 | ROLLER, SEAM 1.25" | 1 |
| 003074 | SCISSORS | 1 |
| 004503 | CLAMP, REPAIR, MEDIUM | 1 |
| 004507 | PLUG, TAPERED, 5", WOOD | |
| | PATCHES AS SPECIFIED ON SALES ORDER | 6 |

This repair kit is recommended for the following products:

Heliwells, all Terra tanks up to 2500 gallons and military specifications, Onion tanks, Flex tanks, Heli 150/300, Oasis tanks, Pick-Up tanks.

Tank (Large) Repair Kit 003611 (no glue)

| PART NUMBER | DESCRIPTION | QTY |
|-------------|--|----------|
| 003134 | BAG, TOOL, NYLON | 1 |
| 003661 | PRODUCT, REPAIR, MANUAL | 1 |
| 003608 | BAG, WEIGHT, REPAIR | 1 |
| 003064 | PAD, ABBRASIVE | 2 |
| 003071 | ROLLER, SEAM, 1-1/4" | 1 |
| 003074 | SCISSORS | 1 |
| 002383 | BAG, ZIPLOCK, 9" X 12", .2M | 2 |
| 004507 | PLUG, TAPERED, 5", WD | 1 |
| 004502 | CLAMP, REPAIR, SMALL, (2" HOLE) | 1 |
| 004503 | CLAMP, REPAIR, MEDIUM, (4" HOLE) | 1 |
| 004504 | CLAMP, REPAIR, LARGE, (6" HOLE) | 1 |
| | PATCHES AS SPECIFIED ON SALES ORDER | 6 |

This repair kit is recommended for the following products:

All Terra tanks over 2500 gallons.

Patches Available

| PART NUMBER | DESCRIPTION | COLOR | WHERE USED | QTY |
|-------------|------------------|--------------|----------------------------------|-----|
| 008905 | PATCH 32oz. PTFE | ORANGE | BAMBI BUCKETS 6072-HL9800 | 1 |
| 003619 | PATCH 28oz VYL | ORANGE | FIREFLEX PRODUCT LINE | 1 |
| 003620 | PATCH 24oz XR5 | YELLOW | FLEXPAKS, HAZMAT TANKS | 1 |
| 003623 | PATCH 30oz XR5 | BLACK | HAZMAT, SACKSAFOAM | 1 |
| 003624 | PATCH 32oz PTF | TAN | FUEL EASY, PETRO SHIELD | 1 |
| 003626 | PATCH 38oz PTFE | GREEN | JUNGLE KING, BAT INNER SHELL | 1 |
| 003627 | PATCH 30oz PTFE | GREY | TCM, SNOW PILLOW | 1 |
| 003645 | PATCH 36oz. OBU | ORANGE | BAT INNER TANK | 1 |
| 006543 | PATCH 36oz. ULC | GREEN/TAN | ARTIC BERMS (ULC APPROVED) | 1 |
| 007179 | PATCH 30oz. XR5 | BLACK | L-ROD BERMS | 1 |
| 007357 | PATCH 42oz UR | ORANGE/CLEAR | FRAC TANKS 8000UP FLEX TANK | 1 |
| 008905 | PATCH 32oz. PTFE | ORANGE | BAT TANKS (OUTER SHELL) | 1 |
| 010647 | PATCH 30oz. XR3 | BLUE/WHITE | POTABLE TANKS, FIREFLEX PRODUCTS | 1 |
| 000898 | PATCH 32oz. PWT | TAN/CLEAR | POTABLE & ONION TANKS MILSPEC | 1 |
| 010677 | PATCH 45oz. PTF | TAN/WHITE | FUEL TERRA TANKS | 1 |

Optional Supplies**Important Note**

It is the responsibility of the dealer and end user to ensure that the importation of glue is allowed in the country of use.



| PART NUMBER | DESCRIPTION | QTY |
|-------------|----------------------------------|-----|
| 003090 | ADHESIVE, DURA-SEAL ¾ OZ | 1 |
| 003091 | ADHESIVE, DURA-SEAL 8 OZ | 1 |
| 004502 | CLAMP, REPAIR, SMALL, (2" HOLE) | 1 |
| 004503 | CLAMP, REPAIR, MEDIUM, (4" HOLE) | 1 |
| 004504 | CLAMP, REPAIR, LARGE, (6" HOLE) | 1 |

Section 7: Fabric-Specific Repairs

Fabric Information

Warning for All Fabrics

If the item is damaged when filled with liquid, use a wood screw or clamp (three sizes available). If dry when damaged, use Dura-Seal adhesive (designed by SEI for use on our unique fabrics).

If dry when damaged and a hot air gun is available, then use this method, if possible, as it provides the most effective and long-lasting repair (note warning information in section *Hot Air Gun Repairs*).

Be especially careful on some fabrics as they can blister quickly if too much heat is applied. Never use a hot air gun around flammable fumes such as gasoline or paint thinner.

Select your specific fabric from the list below to find important repair information on that fabric. Each fabric has a repair patch number listed with its color for ease in ordering patches.

Aqua-Shield (22 oz. yellow color, repair patch #003621), used for Fireflex, Buoywall, Oasis liners.

This Aqua-Shield fabric is constructed with a PVC coating on a polyester scrim, with excellent water holding characteristics and good chemical resistance for some chemicals. Contact SEI to determine if the chemical you want to contain is compatible. This fabric also has excellent durability and can be deployed in temperatures of – 10 degrees. *An alternative glue would be Loctite 495 which should be available locally.*

Aqua-Shield NP (28 oz. orange color, repair patch #003619), used in Fireflex products including Flextanks, Stilwells, Heliwells.

Aqua-Shield fabrics are constructed with an alloy coating that combines durability and excellent water containment with a built-in cold crack to the standard of MIL-C-20696C. This fabric can be used to contain certain chemicals. Please call SEI for confirmation of resistance for specific chemicals. An alternative glue for repairs would be Loctite 495.

Aqua-Shield MIL SPEC (32, 34, 40 oz. tan/clear color, repair patch #000989), used in Terra tanks, ER tanks and Onion tanks.

Aqua-Shield tanks are constructed from urethane-coated nylon approved by the National Sanitation Foundation (NSF), Standard 61, for containment of potable water. Aqua-Shield fabric is suitable for the containment of some acids but is not suitable for fuels or oils. Aqua-Shield fabric meets U.S. military specification MI-T-53029C and ADTP-2265. Note: If tank contains potable water, do not repair using adhesive.

Chem-Shield (30 oz. black/black color, repair patch #003623), used in Terra tanks, ER tanks, Onion and Hazmat tanks.

Both Chem-Shield tanks are constructed with interpolymer alloy coating that combines excellent durability with resistance to many chemicals. This fabric is suitable for containment of oily water, sludge, transformer mineral oil, sulphuric acid, PCB transformer oils, 30% chlorine, ammonium hydroxide, ethanol and fertilizer. This tank is designed to contain most chemicals. Call SEI to confirm for a specific chemical. Using optional corrosion proof fittings, phosphoric acid (10%) and sodium hydroxide (60%) are also permissible. *An alternative glue would be Loctite 495 which should be available locally.*

Petro-Shield (tan/tan color, repair patch #003624), used in Terra, Arctic King and Desert King tanks.

Petro-Shield tanks are constructed from urethane-coated nylon that meets U.S. military specification MIL-T-52983G for fuel tanks. The following fluids are acceptable for containment: Jet A, Jet B, JP-1, JP-4, JP-8, kerosene, avgas, diesel fuels with less than 40% aromatic content and isopropyl alcohol. Petro-Shield fabric is not suitable for use with gasoline. Petro-Shield fabric meets U.S. military specification MI-T-52983G and ATPD-2266. *An alternative glue would be 3M(DP420) which should be available locally.*

Jungle King (tan/tan color, repair patch #003626)

Jungle King tanks are constructed from double-offset urethane-coated nylon that exceeds U.S. military specification MIL-T-52983G and ATPD-2266 for fuel tanks. The following fluids are acceptable for containment: Jet A, Jet B, JP-1, JP-4, JP-8, kerosene, avgas, diesel fuels with less than 40% aromatic content. Jungle King fabric is not suitable for use with gasoline (see Desert King). *An alternative glue would be 3M(DP420) which should be available locally.*

Temp Shield (black color, repair patch #003627)

Temp Shield fabric is constructed from double-offset urethane-coated nylon that exceeds U.S. military specification MIL-T-52983G and ATPD-2266 for fuel tanks. The following fluids are acceptable for containment: Jet A, Jet B, JP-1, JP-4, JP-8, kerosene, avgas, diesel fuels with less than 40% aromatic content. Temp Shield fabric is not suitable for use with gasoline (see Desert King). *An alternative glue would be 3M(DP420) which should be available locally.*

Section 8: Dura-Seal MSDS

DURA-SEAL Safety Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: AQUASEAL/DURASEAL

Product Description: URETHANE PREPOLYMER -ADHESIVE

Product Code: 10110

MANUFACTURER: 24 HR. EMERGENCY TELEPHONE

Emergency Contact: CHEMTEL

Emergency Phone: 1-800-255-3924

Outside U.S. (Collect) USA 813-248-0585

MCNETT CORPORATION ADDRESS

1411 MEADOR AVENUE BELLINGHAM, WA, USA 98229-5845

MCNETT EUROPE

KEURMEESTERSTRAAT 22, 2984 BA

PO BOX 140, 2980 AC

RIDDERKERK, THE NETHERLANDS

2. COMPOSITION/INFORMATION ON INGREDIENTS

Toluene CAS Registry # 108-88-3

Copolymer Component (Diphenylmethane CAS Registry # 101-68-8

Di-isocyanate, Polytetramethylene Ether Glycol)

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

EYES: May cause irritation, redness, tearing, and possible cornea damage.

SKIN: Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation.

INGESTION: Small amounts of this product aspirated into the respiratory system during ingestion or vomiting may cause mild to severe pulmonary injury.

INHALATION: High vapour concentrations (+ 1000 ppm) are irritating to the eyes and respiratory tract, may cause headache.

4. FIRST AID MEASURES

EYES: Flush with large amounts of water continuously for 15 minutes. Consult medical personnel immediately.

SKIN: Wash off with alcohol, paint thinner, or other solvent, then wash with soap and water.

INGESTION: Do not induce vomiting. Keep at rest. Get prompt medical attention.

INHALATION: Using proper respiratory protection, remove the victim from exposure. Get medical attention.

5. FIRE FIGHTING MEASURES

Flashpoint and Method: 68°F 20°C Cleveland Closed Cup

Flammable Limits: Unknown

Autoignition Temperature: Unknown

EXTINGUISHING MEDIA: Carbon Dioxide, regular foam or dry chemical

EXPLOSION HAZARDS: Vapours are heavier than air and may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, heaters or other ignition sources at location distant from material handling point.

FIRE FIGHTING PROCEDURES: Use self contained breathing apparatus with a full faceplate operated in pressure-demand mode.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Cover spill with sawdust, fuller's earth, or other absorbent material.

7. HANDLING AND STORAGE

HANDLING: Avoid contact with skin or eyes.

STORAGE: Store in tightly sealed container to prevent moisture contamination, store away from heat and flames.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**PERSONAL PROTECTION**

SKIN: Protective gloves required if frequent or prolonged contact with the skin is expected.

RESPIRATORY: Good general ventilation should be sufficient; if not, use charcoal mask or air respirator.

PROTECTIVE CLOTHING: Use protective clothing and safety glasses if frequent or prolonged contact with skin or eyes is expected.

WORK HYGIENIC PRACTICES: Avoid contact with skin or eyes.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Odour: Aromatic

Appearance: Viscous, translucent liquid

Color: Clear

Vapour Density: 3.2 (Air = 1)

Boiling Point: 235 to 240°F 115 to 120°C

Solubility in Water: Insoluble

Evaporation Rate: >1 (n-Butyl Acetate = 1)

Specific Gravity: 1.00 (water = 1)

Viscosity: 6250

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: No

STABILITY: Stable

CONDITIONS TO AVOID: Avoid temperatures greater than 120°F.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: May cause eye irritation.

SKIN EFFECTS: May cause skin irritation.

12. ECOLOGICAL INFORMATION

COMMENTS: Ecological testing has not been conducted on this product.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with local, state or national legislation.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

Hot Hazard: No

Combustible Hot Drum: No

Combustible Class: No

Hazard Class: 3

NA/UN Number: UN1133

Packing Group: III

Reportable Quantity (RQ) Under CERCLA: N/A

U.S. Surface Freight Class: 85

Bulk Freight Class: N/A

Marine Pollutant #1: N/A

Marine Pollutant #2: N/A

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 Hazard Categories:

Fire: Yes Pressure Generating: No Reactivity: No Acute: No Chronic: No

16. OTHER INFORMATION

MANUFACTURER DISCLAIMER:

Information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of these materials and for the safety and health of employees.