C-LITE® – The Material

C-LITE® is a plastic material made of a 100% cotton fabric impregnated with a thermoplastic resin which during the manufacturing process becomes completely cured. This provides a strong, stable, and very durable material that is both airy and light. Thermoplastic polymers become soft and moldable when heated and solidify while cooling down. This process can be repeated any number of times without material breakdown or waste. The cotton fabric mesh forms a natural passageway for heat and moisture.

C-LITE, unlike X-LITE, has no plastic separator between the layers of the roll. The material is therefore very easy to apply to the patient. Another difference is that the C-LITE has a textile surface that gives the material its color. C-LITE is available in five attractive colors, eight different widths, and currently only offered on a roll. C-LITE works on both circular casts and small hand splints etc.

C-LITE has the greatest stretch in width and least stretch lengthwise. When C-LITE is used for circular casts it should be wrapped with a light pull for best results. It is also common for the material to be stretched on the width. When taking measurements and cutting the pattern for a splint remember to take this stretch into consideration as the splint may become a little shorter in length.

Scope of use

C-LITE can be used for most orthopedic cast applications. C-LITE works best with circular casts as the material is on a roll, but it is of course also great to use for splints. Some examples are given here:

- Circular hand and arm casts
- Circular leg casts
- Elbow splints
- Radial-ulnar splints
- Finger splints
- Lower leg splints

Environmental and health benefits

C-LITE rolls emit no harmful substances when heated, applied, or in the drying process as the material solidifies. There is no curing process.

MSDS available upon request.
Practical handling

Heat in water

C-LITE is heated in a water bath at 65° - 68°. Submerse the desired number of rolls in the water for 1 ½ - 2 minutes. Make sure that the water penetrates into the rolls by pressing them down a bit. Always be sure that the material is heated through before you start working with it. Do not leave in water longer than recommended as there is a risk that the textile layer will separate.

Use tongs to pick up C-LITE rolls or splints from the water bath. Avoid direct contact with the skin due to the water temperature. Do not squeeze, pinch, or shake the water out of the rolls, instead, let excess water drain out.

Smaller pieces of the material may be heated with a hairdryer or heat gun.

Rolls that have been heated are reusable. Set the rolls on end and let them dry. Expect a slightly longer warm-up time for the next use.

Make sure you have plenty of water in the water bath and refill as the level drops.

The water bath should be emptied, cleaned, and wiped dry daily for a longer life. Camp Scandinavia does not carry water baths in the product range.

Casting

The casting may be done with or without gloves.

Use Stockinette and Foam padding under the cast. Foam pad does not allow the heat or hot water to pass through when the material is being applied to the patient.

Apply with the colored textile surface on the outside. Smooth the surface lightly by hand as the material is wrapped onto the patient. It is important that the material is smoothed continuously during the casting process to ensure a smooth uniform finish. Circulate the material with 50% overlap. If you desire more rigidity in certain areas on the cast or splint simply add more layers. Working time is about 2-3 min before the material begins to solidify. Circulate with a light stroke for best results. When using multiple layers of C-LITE, all layers need to be warm.

While material is still warm, roll or smooth all edges. Cut the stockinette and foam padding a half inch longer at all openings and fold over the cast or splint to form a clean, finished edge.

C-LITE can be can be re-heated and re-shaped any number of times. If you need to re-shape the cast or splint or if you need to reformat the bandage, you can heat C-LITE with a hair dryer or heat gun and redesign it.
C-LITE gives off no heat and is x-ray permeable.

After 15 minutes, the material is hard and after 20 minutes weight bearing.

**To remove the cast or splint**

C-LITE can be removed with ordinary casts instruments such as cast saws, files, saw blades, or sharp cast scissors. C-LITE emits no harmful residue during the removal process. Exhaust fans are not necessary in the cast room.
X -LITE® - The Material

X-LITE® is a cast material made of a 100% cotton fabric impregnated with a thermoplastic resin which during the manufacturing process becomes completely cured. This provides a strong, stable, and very durable material that is simultaneously airy and light. Thermoplastic polymers become soft and moldable when heated and solidify while cooling down. This process can be repeated any number of times without material breakdown or waste. The cotton fabric mesh forms a natural passageway for heat and moisture.

In the X -LITE family there are two different materials, X-LITE CLASSIC and PREMIUM. CLASSIC consists of a cotton fabric with larger mesh/holes, making the cast more stable as more thermoplastic material can penetrate the mesh during manufacturing. This feature also makes CLASSIC slightly more airy. X-LITE CLASSIC fits into larger applications but is of course also great for splints and smaller applications. PREMIUM is made of the same cotton fabric but with smaller mesh/holes. The finished PREMIUM cast is ideal for smaller applications such as arm, hand, fingers, and children’s casts. X-LITE has the greatest stretch in width and less stretch on the length.

When X-LITE is used for circular casts it should be wrapped with a light pull for best results. It is also common for the material to be stretched on the width. When taking measurements and cutting the pattern for a splint remember to take this stretch into consideration as the splint may become a little shorter in length.

X -LITE gives off no heat and is x-ray permeable.

Scope of use

X-LITE can be used for most orthopedic cast applications. Some examples are given here:

- Circular hand and arm casts
- Circular leg casts
- Elbow splints
- Radial-ulnar splints
- Finger splints
- Lower leg splints

Environmental and health benefits

X-LITE rolls emit no harmful substances when heated, applied, or in the drying process as the material solidifies. There is no curing process when applied on the patient where heat, isocyanates, or
other harmful products develop. The material can be applied on the patient without the use of gloves. Upon removal of the cast no dust is produced. There are no restrictions for pregnant women, allergic or asthmatic patients, or users.

X-Lite meets the international standard of biodegradation is sorted as non-hazardous waste. Combustion produces carbon dioxide and water. MSDS available upon request.

**Practical handling**

**Heat in water**

X-LITE is heated in a water bath with 67°C - 70°C. Submerse the desired number of rolls in the water. Make sure the water penetrates into the rolls by pressing them down a bit. This will take up to 5 minutes for rolls and 2-3 minutes for a sheet. The material may remain in the water throughout the day and is therefore always ready for use. Always be sure that the material is heated through before you start working with it. Since X-LITE has a plastic separator any unused rolls may be removed from the bath, gently squeezed to remove excess water, and left to dry until ready to use again.

TIP: Remove the first layer of the separator and paper label when the roll becomes soft. This helps avoid debris from the paper in the water and you can easily see which rolls are soft and can be used first.

Use tongs to pick up the X-LITE rolls or sheets from the water bath and drain. If you use rolls you can gently squeeze them in a towel.

When reheating rolls that were previously in water and drained it will take about 10 minutes longer for the rolls to be warmed again. The material may also, on a smaller scale, be heated with a hairdryer or hot air gun. Make sure that you have plenty of water in the water bath and fill up as the level drops down.

The water bath should be emptied, cleaned, and wiped dry daily for a longer life.
Casting

Casting may be done with or without gloves. Use Stockinette and Foam padding under the cast. Foam pad does not allow the heat or hot water to pass through when the material is being applied to the patient.

Making a circular cast with X-LITE requires a slightly different technique than with C-LITE due to the plastic separator rolled with the material. This separator ensures that the X-LITE layers do not stick together as the material becomes warm in the water bath.

The plastic separator is continuously removed during the process. Pulling the separator with one hand thereby advances the X-LITE roll. It is important that the roll is turned in the right direction (see image) before starting to wrap the cast. Circulate with a light pull for best results.

Apply the material with 50% overlap. If you desire more stable bandages, e.g. at stress points, just add more layers. The working time is about 2 minutes before material begins to solidify.

When you merge multiple layers of X-LITE, all layers need to be hot.

While material is still warm, roll or smooth all edges. Cut the stockinette and foam padding a half inch longer at all openings and fold over the cast or splint to form a clean, finished edge.

X-LITE can be re-heated and re-shaped any number of times. If you need to re-shape the cast or splint or if you need to reformat the bandage, you can heat X-LITE with a hair dryer or heat gun and redesign it.

Rigidity and durability can be easily customized with a choice of X-LITE CLASSIC and X-LITE PREMIUM and by the number of layers. Normal casts are composed of two layers of X-LITE. A standard cast is x-ray permeable. After 15 minutes the plaster is hard and after 20 minutes weight bearing.

To remove the cast

X-LITE can be removed with ordinary cast instruments such as cast saws, files, saw blades, or sharp cast scissors. X-LITE emits no harmful residue during the removal process. Exhaust fans are not necessary in the cast room.
C-LITE® – Examples of Cast Applications

Scaphoid Cast

Materials Needed
• Stockinette 2.1 cm and 3 cm and 5 cm 7 cm
• Foam padding 7.5 cm or cut to size 10 cm
• 1-2 rolls of C-LITE 5 cm or 7.5 cm
• 1 thumb splint made of C-LITE 10 cm - 12.5 cm

Put the stockinette and foam-padding on the patient. Fold the sock and padding edges back to finish the edges.

Cut a thumb splint out of a double layer of 10 cm C-LITE material.

For a smoother splint cut one layer a bit longer.

Fold the longer edge over the shorter edge for a finished look.

Place this double layered piece in the water bath with the roll.
Remove the roll after 20 seconds. Unroll enough material to wrap around the hand and lay it down on the table with the colored side facing down against the work surface. Fold down 2/3 of the width and make a cut in the middle as shown.

Place the roll back in the water bath for an additional 1-1.5 minutes.

Put the other roll into the water bath as well.

Apply the thumb splint.

Starting a bit below the stockinet-te and foam padding edge begin to wrap the hand with the cut roll, wrapping towards the elbow.

NOTE! Remember to carefully shape the cast so that the layers attach together. Stroke with your hand over the casted surface as the material is rolled on. It is important that the material is continuously formed.
Circular Leg Cast with a Dorsal Reinforcement Splint

**Materials Needed**
- Stockinette 7 – 10 cm
- Foam padding 7.5 - 10 cm
- 2 - 3 rolls of C-LITE 10-15 cm depending on patient size
- Optional for reinforcement or heavier patients: 1 dorsal splint made from two layers of X-LITE CLASSIC

Place the rolls in the water bath so they are fully submersed.

Put the stockinette and foam padding on the patient. Fold the sock and padding edges back to finish the edges.

Cut a splint of X-LITE CLASSIC in 2 layers. Measure the splint from the toe base to mid-calf. Heat up the splint edges in the water bath and laminate the layers together. Keep in mind that the splint may shrink a little when it warms up in the bath.

Place the splint in the water bath.
Apply the dorsal splint.

Begin wrapping the leg 1-2 cm below the stockinette and foam padding edge. Wrap the material allowing a 66% overlap for the foot and ankle and a 50% overlap across the calf.

NOTE! Remember to carefully smooth the cast so that the layers attach together. Continue to smooth the cast surface by hand as the material is rolled on. It is important that the material is continuously shaped.
Distal Radius Fracture Splint

Materials Needed
- Stockinette 5 – 7 cm
- Foam padding 5 or 7,5 cm
- X-LITE CLASSIC splint in desired width
- Elastic wrap

Measure the needed length of X-LITE and duplicate one and a half time (double fold + one half fold) still in one piece. The half fold should be positioned over the fracture site (3-layers in all).

Keep in mind the splint will shrink slightly when heated, as well as shrink during application if it is stretched in width.

Dip just the edges of the layers into the water bath and press together so they do not separate.
Cut the splint to the desired shape while it is wet. Then place the splint back in the water bath.

Put stockinette and foam padding on patient. Cut 2 cm longer than needed to allow folding for a clean edge.

Apply the splint.

Fold the Stockinette and Foam padding over the splint to make soft edges. Remember to carefully shape the splint. Wrap with the elastic wrap.
Metacarpal Splint

Materials Needed
- Stockinette 5 – 7 cm
- Foam padding 5 or 7.5 cm
- X-LITE CLASSIC splint in desired width
- Elastic wrap

Measure the needed length of X-LITE and duplicate one and a half time (double fold + one half fold) still in one piece. The half fold should be positioned over the fracture site (3-layers in all).

Keep in mind the splint will shrink slightly when heated, as well as shrink during application if it is stretched in width.

Dip just the edges of the layers into the water bath and press together so they do not separate.

Cut the splint to the desired shape while it is wet. Then place splint back in the water bath again.
Put stockinette and foam padding on patient. Cut 2 cm longer than needed to allow for folding for a clean edge.

Apply the splint.

Fold the stockinette and Foam Padding over the splint to form a finished edge.

Remember to carefully shape the splint.

Wrap with elastic wrap.
Elbow Splint

Materials Needed
- Stockinette 7 cm
- Foam padding 7,5 and 10 cm
- 2 X-LITE CLASSIC splint in desired width
- Elastic wrap

Measure one splint for the forearm and one for the upper arm in two layers. Pull out the estimated length you need from the dispenser. Fold in two. The folded edge shall be closest to the joint (wrist, shoulder).

Keep in mind the splint will shrink slightly when heated, as well as shrink during application if it is stretched in width.

Dip just the edges of the layers into the water bath and press together so they do not separate.

Place all the splints back in the water bath. The one you choose to use first should be on top in the water bath. Place the splint you must use first above the other in the bath.

Put stockinette and foam padding on patient. Cut 2 cm longer than needed to allow for folding for a clean edge.

Apply the splints.
Pinch the excess plaster at the elbow and cut off immediately.

Fold the stockinette and foam padding over the splint to form a finished edge.

Remember to carefully shape the splint.

Wrap with elastic wrap.
Scaphoid Cast

Materials Needed
- Stockinette 2.1 cm or 3 cm and 5 cm or 7 cm
- Foam padding 7.5 cm or cut 10 cm
- 1-2 rolls of X-LITE PREMIUM or CLASSIC 5 cm or 7.5 cm
- 1 thumb splint made of X-LITE PREMIUM or CLASSIC 10 cm - 12 cm

Place the X-LITE rolls in the water bath for at least 4-5 minutes. Note: Rolls can also stay in the bath for an entire day.

Cut a thumb splint in two layers and place in the water bath.

Choose one of the warmed rolls from the water bath. Unroll enough material to wrap around the hand and lay it down on the table. Fold down 2/3 of the width and make a cut in the middle as shown. Place the remaining roll back in the water bath.

Put stockinette and foam padding on patient. Cut 2 cm longer than needed to allow for folding for a clean edge.
Apply the thumb splint and fold the stockinette and foam padding over to form a finished edge.

Starting a bit below the stockinette and foam padding edge begin to wrap the hand with the cut roll, wrapping towards the elbow.

NOTE! Remember to carefully smooth the cast so that the layers attach together. Continue to smooth the cast surface by hand as the material is rolled on. It is important that the material is continuously shaped.
Circular Leg Cast with a dorsal Reinforcement Splint

Materials Needed
- Stockinette 7 cm – 10 cm
- Foam padding 7.5 cm – 15 cm
- 2-4 rolls of X-LITE CLASSIC, width according to patients leg size
- Optional for reinforcement or heavier patients: 1 dorsal splint made from two layers of X-LITE CLASSIC

Place all rolls in the water bath so they are fully submerged.

Put the stockinette and Foam Padding on the patient. Fold the sock and padding edges back to finish the edges.

Cut a splint of X-LITE CLASSIC in 2 layers. Measure the splint from the toe base to mid-calf. Heat up the splint edges in the water bath and laminate the layers together. Keep in mind that the splint may shrink a little when it warms up in the bath.

Place the splint in the water bath.
Apply the dorsal splint.

Begin wrapping the leg 1-2 cm below the stockinette and foam padding edge. Wrap the material allowing a 66% overlap for the foot and ankle and a 50% overlap across the calf.

NOTE! Remember to carefully smooth the cast so that the layers attach together. Continue to smooth the cast surface by hand as the material is rolled on. It is important that the material is continuously shaped.
Patient Benefits
• The natural pattern makes the material airy and allows wounds to breathe
• Very light weight
• Ready to be load bearing after 20 minutes
• C-LITE is available in five attractive colors
• If the cast is used while bathing we recommend using padding under the cast that can withstand water. Avoid chlorinated water.
• If the cast becomes dirty, wipe it off with a damp cloth and mild soap.
• If the cast gets wet, use cold air from a hair dryer to dry it.

Staff Benefits
• Transparent to X-rays
• No dust produced
• Large variety: C-LITE is available in 5 attractive colors and each color is available in eight different widths on rolls
• Easy to make adjustments, materials can be re-heated and re-formed
• Scraps can be used for the next cast or for reinforcements.
• A broken cast is easy to repair on the patient
• Rolls that have been heated in a water bath can be reused (I think this is only true for X-LITE, not C-LITE)

Health and Ecological Benefits
• All waste is recyclable
• No dust upon removal
• The material contains no isocyanates or other hazardous substances
• No restriction on use for asthmatic or pregnant staff, or patients
• No need for gloves
• No need for exhaust fan in the cast room
• There is no chemical reaction when C-LITE and X-LITE are heated
• No dust at cast removal
• Dispose of as ordinary waste
Support for Better Life!