DYMAX® **Corporation**

Adhesives and Adhesive Equipment
51 Greenwoods Road, Torrington, CT 06790

DYMAX ACTIVATOR
Product Data Sheet

ACTIVATOR 535

DESCRIPTION

Activator 535, is a curing agent for Dymax 800 Series adhesives. It may also be used with Multi-Cure® 600 Series adhesives and other special products available from Dymax Corporation. It contains an active ingredient dissolved in 1,1,1 Trichloroethane. Typically it is applied to one bonding surface and adhesive is applied to the other bonding surface. It is available in two concentrations: 535 (standard) and 535-x-50 may be recommended where porous substrates or consistently thick bond lines are encountered.

TYPICAL UNCURED PROPERTIES

Color	Amber to Brown
Appearance	Leaves oily appearing residue when applied to bonding surfaces
Viscosity	50 cP (nominal)

CURE DATA

The following schedule of fixture times applies to Dymax and Light Weld® adhesives. Full cures develop in 24 hours with all adhesives:

Adhesive	Fixture Time (seconds) (Handling Strength)
810	10-20
828	15-30
832	15-30
840	15-20
845	45-60
847	5-12
602	10-15
625	15-20
621	15-30

These times are based on bond line gaps of 0 to 0.002". Although many assemblies have larger bond line gaps, there is usually enough area where bond gaps are below 0.002" to obtain fixture times indicated above. All applications should be evaluated for actual times before repeated use or automated production.

Maximum bond line gap Dymax or Multi-Cure adhesives may be cured through with Activator 535 applied to one surface is 0.020".
For gap above 0.010" where only one surface is activated, some motion of parts upon assembly is needed to achieve mixing of activator and adhesive with resulting optimum bond strength. Two-sided activation will also affect cures through 0.020" gaps.

Activator 535 does not accelerate the UV cure of Multi-Cure adhesives. It does cure adhesive in shaded areas where light does not contact adhesive.

USE AND APPLICATION

For most bonding applications, activator is applied to one bonding surface and adhesive to the other. Spraying, dipping, brushing or swabbing are acceptable techniques for application.

Recommended Technique:

1. Apply activator to one of the surfaces to be bonded. Allow 5-20 seconds for solvent to evaporate. Surfaces will have an oily appearance.
2. Apply a drop or bead(s) of adhesive onto the mating surface, so that when parts are joined the adhesive spreads to fill the joint completely.
3. Assemble parts and clamp or leave undisturbed until fixture (handling strength) occurs.

Additional Technical Considerations

Adhesive Application: Adhesive applied as a drop or bead squeezes from the center to the edges of the bonding surfaces. This technique promotes mixing and assures maximum contact of adhesive and activator over the entire bond area. Use the maximum amount of adhesive to COMPLETELY FILL the joint. Apply just enough adhesive so that a ring of liquid becomes visible when the parts are pressed together. The "fillet" should cure if the proper ratio of adhesive to activator has been used.
If adhesive is applied directly over activator, parts should be assembled as soon as possible since curing begins immediately. Care should be taken not to over apply activator, since this can reduce bond strength. Activator 535-x-50 should only be used where found to be absolutely necessary and tested before repeated use.
Applying activator to wooden surfaces: Two-sided activation is often preferable to activating only one of two mating surfaces. Several minutes should be allowed for solvent evaporation prior to applying adhesive.
On part life of activator: It is recommended that bonding be done within one hour of activator application. Four hours should not be exceeded. If longer on part times are required, contact Dymax Technical Service Department for recommendations. Cure times become extended with longer on part times.

Surface preparation: Most substrates require little, if any surface preparation though adhesion is frequently enhanced by clean, mechanically roughened surfaces. Follow the manufacturer's instructions for the cleaning of plastic surfaces. Grease, wax and some mold release agents are barriers against adhesion.

Activator dispensing: Activator is easily applied with dispensing equipment for automated assembly. Best methods are swabbing or transfer pad printing. Natural felt or open polyurethane foams are suitable. Spray application is also satisfactory. Proper ventilation must be provided, as well as proper design of spray nozzles to prevent overspray. Overspray on surrounding surfaces does not dissipate.

TWO-SIDED ACTIVATION

Two-sided activation is recommended where bond line gaps exceed .020". Parts must be assembled as quickly as possible once adhesive is applied over activator, since curing begins in immediately. Movement of parts during assembly that promotes mixing of adhesive and activator helps to insure complete cure through large bond line gaps. VT and Gel formulations of adhesive should be used for large bond gaps.

CLEAN UP

Excess activator and adhesive may be cleaned with 1,1,1 Trichloroethane or alcohol.

PACKAGING AND SHELF LIFE

Activators are available in 7mL glass vials to 1-quart, 1-gallon, and 5-gallon metal containers. Activator has a one-year shelf life when stored in original, unopened and undamaged containers. No shelf life is stipulated once opened. Activator is oxygen sensitive. Containers should be closed immediately following dispensing. Resealing container under nitrogen extends shelf life. If activator turns black run the fixture test (below) to determine its potency.

RECOMMENDED "SPEED OF CURE " FIXTURE TEST

This test is recommended for inspection of incoming adhesive and activator and for in-line process control. Production parts are ideal for in-line inspection and QC. Alternatively, microscope slides or steel lamps may be as the test substrate. Recommend performing this test at the beginning of each shift and charting the results. This will ensure the adhesive and activator are in good working order.

Step 1: Apply a thin film of activator to one part. Cover about one-square inch.

Step 2: Apply a thin 1/16" film **BEAD** of adhesive (do not spread) to the other part.

Step 3: With a ¾" to 1" overlap, press the two parts together and hold for 5 seconds. [Note-as the adhesive bead rolls across the activator, it picks up the activator-this is how they mix].

Step 4: Every 5 seconds, gently tap the end of one part while holding the other part still. Fixture time is when the parts resist movement with light finger pressure.

Step 5: Record the fixture time. Fixture time should be +/-50% of the average for our combination of adhesive and activator. Outside these limits, repeat, check method and check with different lot of activator or adhesive.

DISPENSING AND HANDLING

These activators are oxygen sensitive. Containers must be kept closed when not in use and to maintain shelf life. Remove only enough activator from the container that can be used in a short period of time (less than 4 hours). If activator turns dark brown or black, its effectiveness should be questioned and determined. This can be done by determining fixturing time between glass or metal slides. Avoid skin and eye contact. Non-porous protective gloves or barrier hand cream should be used. Do not wear jewelry. Protective eye goggles should be worn when handling activator. See CAUTION below. Avoid breathing of vapor. Use positive ventilation to remove vapors.

CAUTION

For industrial use only. Avoid breathing of vapors. Avoid contact with eyes and clothing. In case of contact, immediately flush with plenty of water for at least 15 minutes; for eyes, get medical attention. Wash clothing before reuse. Keep out of reach of children. Do not take internally. If swallowed, vomiting should be induced at once and a physician called. Toxicological properties of experimental products have not been determined. For specific information, refer to the product Material Safety Data Sheet before use.

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