Celbar® Wall Spray Basic Application Guidelines

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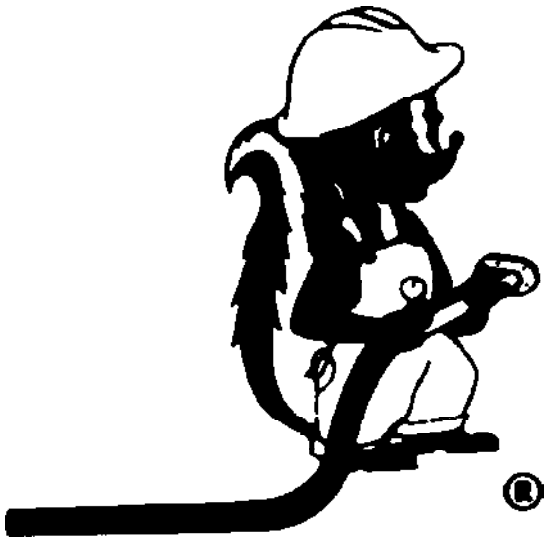
Includes Settings For The Ranger 4 and 5 Machines



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Basic Application Guidelines

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1.0 Substrate Inspection/Preparation

1.1 Examine surfaces to receive spray-applied material to verify they will not be damaged or adversely affected by the spray application.
1.2 Surfaces to be sprayed must be free of oil, grease or any substance that would impair bonding of the sprayed product.
1.3 Do not begin or continue application until unsatisfactory conditions are corrected.

2.0 Masking/Protection of Surfaces

2.1 All surfaces not to receive the sprayed product must be adequately protected to prevent damage from overspray. Restrict access to spray area to authorized personnel only. Post precautionary "Slippery When Wet" signs and take other appropriate means to minimize hazards associated with wet work areas.
2.2 Cover finished areas including windows, doors, fireplaces, etc. Cover electrical boxes until spraying is completed.
2.3 The work area must be isolated to prevent spray material from drifting or being tracked into adjacent areas.

3.0 Inspection of Material

3.1 Machine should be operated in well-lighted area to allow monitoring of material being used.

4.0 Basic Recommended Equipment

4.1 Ranger series spray machine
4.2 AR-200 pump
4.3 ½" (12.5mm) ID high pressure liquid line
4.4 200' 2-½" (60m - 6.25cm) blowing hose
4.5 NA-624 nozzle *(alternate acceptable nozzle NA-800)*
4.6 Stainless nozzle jet(s) – ***Replace every 500 bags***, brass jet(s) – ***Replace every 250 bags***
4.7 Stud Scrubber
4.8 Poly for masking -2 mil
4.9 Duct tape and spray glue
4.10 Whisk brooms
4.11 Tools, ladder, scaffold, lifts as needed

5.0 Initial Equipment Settings

NA-624 Nozzle

Production	Celbar			Ranger	Blower Setting		Pump		Nozzle		Tip
Rate	Bags/HR	LBS/HR	(KG/HR)	Setting	R4	R5	Pressure	(Bar)	Pressure	(Bar)	Selection
Low	11	385	(149)	2¼	7	10	300	(20)	135	(9)	601
Medium	15	450	(203)	2½	7	10	300	(20)	210	(14)	601
High	20	600	(270)	3	7	10	300	(20)	200	(13)	602

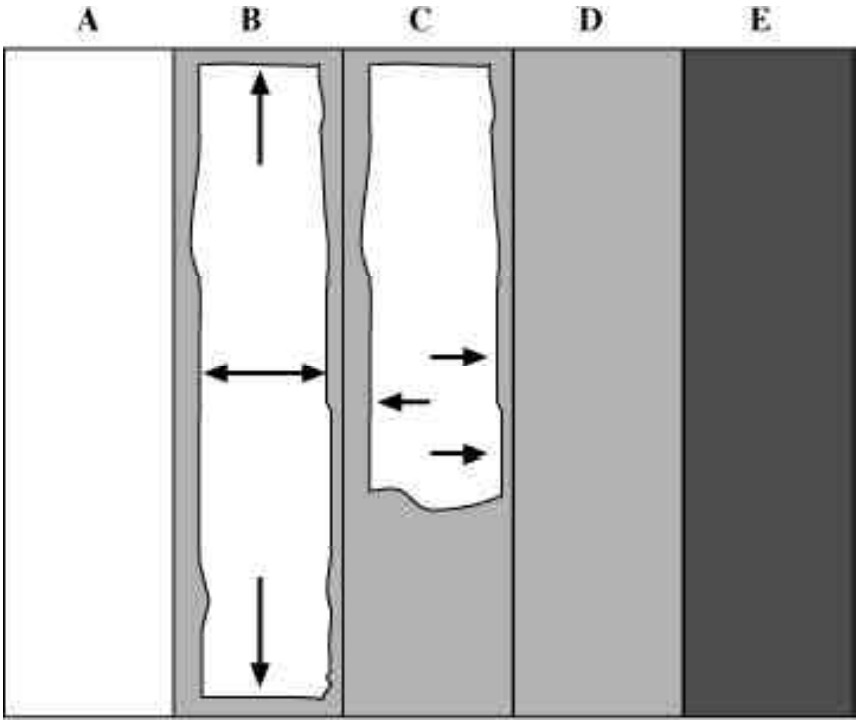
NOTE: ***Ranger 5 Blowers have a higher output than the earlier Rangers. Increasing the air will reduce coverage.***

Proper Water to Insulation ratio: 0.18 gal/lb (.68 L/Kg) or 5.4 gal/30 lb. (20.5L/13.5 Kg) bag.

*Do not exceed 300psi (20 Bar), or drop below 135psi (9 Bar). *See 6.3*

6.0 Spray Techniques

6.1 The angle of spray is an essential part of spraying and must become habit. A downward angle of 5 to 10 degrees and a distance of 3-4 feet (90cm to 120cm) away from the wall gives a layering effect. When spraying layers upon layers, the cavity becomes one solid mass, with no inner voids and enhancing structural integrity. As the nozzle is moved from one side to the other, angle the nozzle and maintain 5 to 10° down, spraying into the existing insulation. Nearing the top of the wall, keep the nozzle angled down. To fill the very top, under the plate, turn the nozzle angle up and step in a little closer to pack the insulation against and into the top of the cavity. After the top portion is almost full step back and level out the nozzle to finish the cavity. Be careful not to over fill the top portion of the wall cavity. The cavities under windows, soffits, etc. must be treated the same as the top plate. Spray directly to studs to achieve the best insulating results.



6.2 Wiping off the stud to get a better idea of the actual thickness in the cavity will help in learning to judge the thickness of over spray and help to keep it to a minimum. A smooth and steady movement of the nozzle will also help to decrease the amount of over spray. There are three principles to know about fall off.

6.2.1 The thicker the wall, the more weight is pulling on the sprayed insulation. Therefore, it is very important to know the fiber to water ratio and keep it consistent. The thicker the walls, the more important this becomes.

6.2.2 The wider the distance between studs, the less surface area the sprayed material has to attach itself to.

6.2.3 The angle of the nozzle and the velocity of the material are important factors for proper application. The sprayed insulation must hit the substrate and stay in place. This can only be achieved with the proper angle. If the angle is not correct, the material will tend to deflect or slide off the studs and substrate.

6.3 Do not exceed 300psi (20 Bar) on the Celbar nozzle. The seats are pressure sealed and will fail over 300psi (20 Bar). If necessary, switch to larger jets if higher volume of water is needed. Do not drop below 135 psi (9 Bar) on the celbar nozzle; 135psi (9 Bar) is required for the jets to atomize properly.

6.4 Installation of Celbar into wall cavities in which both surfaces are or will be covered with impermeable material such as, but not limited to, vinyl wall paper or foil is not recommended unless the Celbar can be dried completely before the wall cavity is closed.

6.5 Installation of Celbar into wall cavities in which one or both sides will be permeable is typical. When correctly installed into such wall assemblies, the walls can be closed as soon as the construction schedule permits.

6.6 Celbar should not be installed on to decorative laminated wood paneling (see1.1), as it is likely to warp.

7.0 Clean-up, Trim and Inspection

7.1 Thoroughly clean the work areas inside and out and remove all overspray, loose material, adhesive spills, etc.

7.2 Dispose of excess material, poly, and other necessary disposable items into the proper refuse containers.

8.0 Curing

8.1 Establish, maintain and monitor ventilation until curing is complete.

8.2 Traffic on flexible surfaces and/or excessive impact or vibration of surfaces that have been coated with the spray material may cause delamination of uncured material and therefore must be prohibited.

9.0 Recycling of Overspray

9.1 Machine damage and downtime are items to consider when adding recycled Celbar to uncontaminated material. Nails, wood, and other foreign objects can seriously damage the seals, hoses, and other key Ranger parts.

9.2 Utilizing a plywood board 3'x2' (90cm x 60cm), hold against a bottom portion of an uninsulated section of wall. Using excess material, pack by hand behind the board until the material is self-supporting. Apply Celbar normally using the packed material as a base.

10.0 General Comments

10.1 This is a basic application guide only. Given the infinite range of project conditions, it is not possible, nor is it the intent of this guide, to address each and every condition that may be encountered.

10.2 ICC products are intended to be installed by trained and experienced personnel. It is the responsbility of the installing contractor to be knowledgeable of and to comply with applicable regulatory, code and safety requirements in the installation of these products. It is also the responsibility of the installing contractor to possess a good working knowledge of commecial/ residential construction practices.

11.0 ICC Application Bulletins available at the time of this publication:

11.1	Warning Bulletin-SF	No. 001 Rev. 02/99
11.2	Adhesive/Asbestos Encapsulant Odor	No. 004 Rev. 02/99
11.3	General Curing Procedures	No. 005 Rev. N/A
11.4	Material Shipping Policy	No. 009 Rev. 02/97
11.5	Field Performance - STC	No. 010 Rev. 02/97
11.6	SK-2000™ Adhesive	No. 011 Rev. 11/00