Technical Data Sheet

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Mixing Procedures

Water-Based Premix Coatings

Unless otherwise indicated, the following procedures are based on the preparation of coating in a 55 gallon open head drum. When mixing in smaller or larger tanks, the procedures are still valid, except for references to specific amounts of coating, specific measurements, or specific distances, etc. For assistance in preparing coating in containers other than a 55 gallon drum, contact your HA International representative.

A. Starting with an Empty 55 gallon Open Head Drum

Step 1: Carefully loosen, but do not remove the bung on the drum lid. Allow any pressure in drum to completely dissipate before removing drum closure and lid.

Step 2: Removed drum lid. Place a properly sized portable mixer into drum.

Step 3: Mix at full speed until all solids on bottom of drum are resuspended and product is uniform. Many products remix readily and only require 15 to 30 minutes of mixing.

Certain products, however, especially products containing zircon, are more difficult to mix. To facilitate the mixing of these products, the following suggestions are made:

A) While holding a portable air mixer, insert blade approximately 12” to 18” into coating. Mix at full speed and keep angle of shaft at approximately 45 degrees and position blade to be 2” to 3” from side of drum. In this position, a very strong top to bottom mixing action will be created.

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B) After mixing as indicated above from 10 to 15 minutes, the mixer can be clamped onto the side of the drum. While mixing, a garden hoe or other tool can be used to break up the buildup of solids on the bottom of the drum.

C) Change the position of the mixer on the drum every 10 to 20 minutes.

D) Ship products that require major dilution in drums that are only ¾ full. By adding approximately 10 gallons of water to drum before any attempt is made to mix, coating action (strong top to bottom turnover) will be achieved. To prevent excessive foram, always add water below the surface of the coating.

If product "as received" is checking by foundry, does not require dilution, or if it only requires minor dilution before use, then this technique cannot be used.

Step 4: Stop mixer. Allow material motion to stop. Determine Baume' and/or viscosity. If product specifications are checked by foundry, also determine coating density and coating temperature.

Step 5: If Baume' and/or viscosity are too high but close to the desired range, gradually add small amounts of water. Mix 5 to 10 minutes after each addition of water. Recheck Baume' and/or viscosity.

Step 6: If product requires major dilution, add the maximum amount of water to the drum and mix until thoroughly mixed and homogenous. To prevent excessive foam, always add water below the surface of the coating. Remove enough of the partially diluted coating so that coating remaining in drum can be diluted to desired Baume' or viscosity. While mixing, gradually add water until coating is slightly higher than desired Baume' or viscosity.

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Step 7: Repeat step 5 until coating is within desired Baume' and viscosity range.

Step 8: When coating properities are within desired range, mix an additional 15 minutes. Recheck Baume' and viscosity.

Step 9: When desired Baume' and viscosity range is definitely established, mixing intensity should be reduced to a gentle roll and coating is ready to be used.

Step 10: When coating is ready to be used, HA International recommends that the time, Baume', viscosity, coating density, and coating temperature be determined and that the data be recorded.

Step 11: The Baume', viscosity, coating density, and coating temperature should be checked at least once and preferably twice per shift. Changes in these properties will indicate a potential problem before it becomes serious and results in scrapped castings.

Step 12: The partially diluted coating removed from the drum in Step 6 can also be diluted to the desired Baume' and viscosity, can also be used to increase or maintain Baume' and viscosity of coating in mixing drum, dip tanks or spray tanks, or can be accumulated until there is enough material to yield a full drum of diluted coating.

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B. Adding Slurry to Central Mixing Tank (Starting with an Empty Tank)

Step 1: Calculate (If not known) the working capacity of tank.

Step 2: Calculate how many gallons of water and how many drums of product are required to fill tank to its working capacity. For assistance in this calculation, contact your HA International representative.

Step 3: To simplify the mixing procedure, attempt to only add the entire contents of a full drum to the mixing tank. If necessary, adjust the volume of diluted coating in tank so only full drums of product have to be added. If the entire contents of a full drum cannot be added, the product must be thoroughly mixed in a the shipping drum before any portion of the drum can be added to the mixing tank.

Step 4: Starting with a clean tank, fill it with approximately ½ the calculated amount of water. If this amount of water does not cover mixing blade, add additional water until blade is covered.

Step 5: Carefully loosen, but do not remove the bung on the drum lid. Allow any pressure in drum to completely dissipate before removing drum closure and lid.

Step 6: Start mixer at moderate speed. Add the entire contents of the number of full drums calculated in Step 2. Rinse out drums with a small amount of water and add water to mixing tank.

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Step 7: If necessary to use only a portion of a full drum, the entire drum must be thoroughly mixed and all solids on bottom of drum must be resuspended. Add the required amount of product to mixing tank.

Step 8: As mixture thickens, increase mixing speed. Mix at highest possible speed without forming a major vortex. A slight vortex is acceptable. If mixture becomes too thick for mixer, add moderate amounts (1-5 gallons) of water until mixing motion is regained.

Step 9: Mix 15 to 30 minutes or until all slurry is dispersed.

Step 10: Reduce mixer speed. Gradually add approximately 90% of remaining amount of calculated dilution water.

Step 11: Again adjust mixer speed until only a slight or no vortex is obtained. Mix 15 to 30 minutes. Check Baume' and/or viscosity. Baume' and vixcosity should be slightly higher than desired.

Step 12: Gradually add small amount of water in 1 to 2 gallon increments. Mix 5 to 10 minutes and recheck Baume' and/or viscosity.

Step 13: Repeat Step 12 until coating is within desired Baume' and viscosity range.

Step 14: When coating properties are within desired range, mix an additional 15 minutes.

Step 15: When desired Baume' and viscosity range is definitely established, reduce mixing intensity to a gentle roll. Coating is now ready to be used.

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Step 16: When coating is ready to be used, HA International recommends that the time, Baume', viscosity, coating density, and coating temperature be determined and that the data be recorded.

Step 17: The Baume', viscosity, coating density, and coating temperature should be checked at least once and preferably twice per shift. Changes in these properties will indicate a potential problem before it becomes serious and results in scrapped castings.

C. Adding Slurry to Central Mixing Tank Which Already Contains Coating

Step 1: Do not allow coating level in tank to become less than 6" above mixing blade. Increase mixing speed until a slight vortex is formed. At this stage of coating preparation, a slight vortex is desirable.

Step 2: Carefully loosen, but do not remove the bung on drum lid. Allow any pressure in drum to completely dissipate before removing drum closure and lid.

Step 3: To simplify the mixing procedure, attempt to only add the entire contents of a full drum to the mixing tank. If necessary, adjust the volume of diluted coating in tank so only full drums of product have to be added. If the entire contents of a full drum cannot be added, the product must be thoroughly mixed in a the shipping drum before any portion of the drum can be added to the mixing tank.

Step 4: Add the entire contents of full drums of product until coating gecomes a medium to high viscosity slurry.

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Step 5: If necessary to use only a portion of a full drum, the entire drum must be thoroughly mixed and all solids on bottom of drum must be resuspended. Add the required amount of product to mixing tank.

Step 6: As mixture thickens, increase mixing speed. Mix at highest possible speed without forming a major vortex. A slight vortex is acceptable. If mixture becomes too thick for mixer, add moderate amounts (1-5 gallons) of water until mixing motion is regained.

Step 7: Mix 15 to 30 minutes or until all slurry is dispersed.

Step 8: Calculate how many gallons of water are required to dilute a drum of product to the approximate working Baume' and viscosity.

Step 9: Reduce mixing speed. For each full drum of product added to mixing tank in Step 4, add approximately 90% of the calculated amount of water required for dilution.

Step 10: Again, adjust mixer speed until only a slight or no vortex is obtained. Mix 15 to 30 minutes. Check Baume' and viscosity. Baume' and viscosity should be slighty higher than desired.

Step 11: Gradually add small amount of water in 1 to 2 gallon increments. Mix 5 to 10 minutes and recheck Baume' and/or viscosity.

Step 12: Repeat Step 11 until coating is within desired Baume' and viscosity range.

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Step 13: When coating properties are within desired range, mix an additional 15 minutes.

Step 14: When desired Baume' and viscosity range is definitely established, reduce mixing intensity to a gentle roll. Coating is now ready to be used.

Step 15: When coating is ready to be used, HA International recommends that the time, Baume', viscosity, coating density, and coating temperature be determined and that the data be recorded.

Step 16: The Baume', viscosity, coating density, and coating temperature should be checked at least once and preferably twice per shift. Changes in these properties will indicate a potential problem before it becomes serious and results in scrapped castings.

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