

RETENTION AID #292

Retention aids are used to hold pigments, dyes, fillers (calcium carbonate, clays, etc.) and other additives to the fiber. #292 is a high molecular weight, cationic polyacrylamide. It is completely soluble in water, and has a very rapid dissolving rate. #292 is cationic, or positively charged.

Use and Instructions:

#292 is used by first making a stock solution. This is then measured out for use and diluted further before adding to the pulp. The dry powder has an indefinite shelf life. The mixed solution is best used within one or two days, but will store longer under most conditions.

Making Stock Solution:

The stock solution is made by mixing the dry powder with water to make a concentrated solution. To allow the solution to mix properly, it is best to make it the night before it is needed, though in most circumstances a solution free of lumps can be made within an hour. Using a gram scale, the ratio of the powder to the water is .5 gm. powder per 100 ml. of water (*approx.: 1 tsp. powder per 2 qts. of water*).

Mixing:

Method 1: Slowly add the powder to the water, stirring until all powder is into solution. If necessary, use a blender to break up the clumps.

Method 2: (Preferred method). To insure a clump-free solution, the .5 gms. of #292 should first be wetted completely by adding 3 ml. of either methanol or ethanol alcohol before adding water.

Isopropyl alcohol will work if no other type is available. Then add 97 ml. of water, working it slowly into a solution. The alcohol makes the particles of retention aid repel each other, making it easier to get a clump-free solution. It will evaporate off, not affecting the retention aid. Sometimes there will be a lot of bubbles or lumps. It may be necessary to shake up the solution and set it aside for awhile, then shake again later to get them out. Otherwise, if you have plenty of time, the bubbles and lumps will go away by themselves.

Use of Stock Solution:

#292 should be added at the ratio of .2 to .6 gm. of dry retention aid per lb. of dry fiber. With the use of the stock solution, this is 1 1/2 oz. to 4 1/2 oz. per lb. of the solution per lb. of dry fiber (40 to 120 ml.). The stock solution must be diluted at least 10 times with water before it is added directly to the pulp to allow for even dispersion. It should be added while the pulp is being mixed, in a beater, mixer, or blender. Best results are usually obtained by adding retention aid 5 min. before adding color, although sometimes the best retention occurs by adding after the color. Let it mix an additional 10 min. after adding pigments. You will need to experiment with the coloring agent used to find the correct amount and time to add it. If the coloring agents do not retain well, you can add additional amounts if necessary, though in some cases the retention aid will never work.

An alternative form of measurement is required when using aqueous dispersed pigments. We have found that 2-3 times the volume of stock retention solution to dispersion works well as a starting point. As a rule, use as little retention aid as possible to yield the desired results. Do not mix for long periods in blenders since the high sheen can knock the pigments off.

Use With Sizing:

If you are using one of the commonly available sizings, the order for mixing is: 1) fiber 2) pigment 3) sizing 4) retention aid. Allow about 5 min. between steps for proper mixing.

Testing for Compatibility of Coloring Agent to Retention Aid:

There is a simple method for testing whether a pigment will be retained well with #292, or if a different retention aid needs to be considered.

Place in a clear glass jar a solution of retention aid. Add a few drops of color. If the color stays in a drop or clumps up, you know that the retention aid is suitable. If it disperses, the retention aid will not be likely to work properly. It should be noted that most pigments and additives are anionic (negatively charged) and will require only the #292 retention aid.

Safety Information:

According to the USDL Safety Data Sheet, this is a low toxicity cationic polyacrylamide. Splash goggles, a dust mask, and rubber gloves should be used when mixing stock solutions, and when handling for extended periods of time. Retention aid is an eye irritant, so flush eyes with water for 15 mins. in case of contact. Avoid prolonged or repeated breathing of dust and contamination with skin. Wash skin with soap and water, and remove and launder contaminated clothing. In case of accidental ingestion, drink plenty of water, and consult a physician. Provide adequate ventilation. Dust generated in handling can be explosive if sufficient quantities are mixed in air, in which case ignition sources should be avoided. Avoid contact with strong oxidants. Spills should be swept up immediately. May create a slip hazard when mixed with water. Store in a cool dry place.

Please read for your protection: Warranty information

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***For more health information contact CHEMTREC at 1-800-424-9300 or your local poison control center. Data safety sheets on this product are on file. For more information on art hazards and safety, consult the Center for Occupational Hazards, 5 Beekman St. New York, NY 10038.**

MEASUREMENT TABLE

Fluid Measures:

		1Tbsp	=	3 tsp.			
1 fl. oz	=	2 Tbsp					
8 fl.oz	=	1 cup					
16 oz.	=	2 cup	=	1 pint			
32 oz.	=	4 cup	=	2 pt.	=	1 quart	
128 oz	=	16 c	=	8 pt.	=	4 qt.	= 1gal.
1 milliliter	=	.0338 oz.					
15 ml.	=	1 tbs.					
29.57 ml.	=	1 oz.					
.03 liter	=	1 oz.					
1 liter	=	33.81 oz.	2.11 pt.	=	1.06 qt.	=	.26 gal.
.473 liter	=	1 pt.					
.946 liter	=	1 qt.					
3.785 liters	=	1 gal.					

Weight Measures:

dry	1 gram	=	.0353 oz.	=	.0022 lb.
	28.35 grams	=	1 oz.		
	453.6 grams	=	16 oz.	=	1 lb.
	.45 kg.	=	16 oz.	=	1 lb.
	100 g	=	3.53 oz.	=	.22 lb
	1 kg.	=	35.27 oz.	=	2.3 lb.

measure of length

mm	=	.001 meter	=	.03937"		
meter	=	39.37"	=	3.28'	=	1.09 yd
cm	=	.3937"	=	.0328'	=	
in	=	.0254 m	=	2.54 cm		
ft	=	.3045 m	=	30.48 cm		

1 Gallon of water at room temp. weighs approx. 8 1/3 lb.

1 pint " 1 lb.

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