

# JMN SPECIALTIES, INC.

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## ENVIROSPEC ES BLENDING GUIDE

<b>Step 1</b>	Drain mixing pit completely to remove any potential for cross contamination with other types of mud additives. Residual water should be at a minimum. Drain all low points before introducing the ENVIROSPEC ES™ concentrate into the mix tank. Residual water can cause an error in the oil / water ratio of the blend that may result in a viscosity increase. Note: If this occurs, simply add additional ENVIROSPEC ES™ Concentrate to the total blended fluid mix to reduce emulsion viscosity.
<b>Step 2</b>	Add the prescribed amount of ENVIROSPEC ES™ into mixing tank along with prescribed amount of GRAPHITE followed by 10 ppb lime. Circulate liquid to a smooth, homogenous blend and circulate for about 30 minutes.
<b>Step 3</b>	Add the GRAPHITE at the prescribed rate and blend to a smooth blend.
<b>Step 4</b>	Add salt (Sodium chloride, NaCl) and continue to blend for 30 minutes checking the funnel viscosity every 15 minutes. Add prescribed water. <b>BLEND WITH HIGHEST DEGREE OF AGITATION &amp; SHEAR AVAILABLE.</b>
<b>Step 5</b>	If the funnel viscosity at this stage is sufficient to support barite, 14 ppg and under funnel viscosity should be greater than 50 seconds/quart, for spot weights of 14 ppg and above funnel viscosity should be greater than 40 seconds/quart.
<b>Step 6</b>	Add the prescribed weight of barite into blend and continue to blend until a uniform and consistent blend is achieved. Additional water increases viscosity; additional ENVIROSPEC ES™ concentrate decreases viscosity.

### Blend Composition by Target Weight

(Volumes shown below make one 42-gallon barrel of spotting fluid pill)

Target Weight (ppg)	8	9	10	11	12	13	14	15	16	17	18
<b>Envirospec ES (gals)</b>	25.5	25.7	25.4	25.5	25.1	24.0	22.9	22.5	22.1	22.2	22.2
<b>Bentonite (lbs)</b>	6	5	4	3	3	3	3	3	3	2	2
<b>Lime (lbs)</b>	10	10	10	10	10	10	10	10	10	10	10
<b>Graphite, 20 - 100 mesh (lbs)</b>	12.5	12.5	12.5	10	10	9	9	7	7	7	7
<b>Salt (lbs)</b>	43	38	35	30	27	25	25	22	19	14	10
<b>Water (gals)</b>	15.2	13.5	12.3	10.7	9.6	9.2	8.8	7.7	6.6	5.0	3.5
<b>Barite (lbs)</b>	0	42	100	159	216	270	325	382	439	498	557
<b>Bbls / 13 bbl tank</b>	21.4	21.2	21.5	21.4	21.8	22.8	23.8	24.3	24.6	24.6	24.6

### Blend Tips:

1. Time into hole is a key factor in any successful stuck pipe freeing application. The sooner the spotting fluid pill is pumped down around the stuck pipe interval the higher the success rates achieved.
2. After spotting across stuck pipe interval, pump about 1 bbl per hour to continue to displace spot pill up the hole.
3. The Bentonite will increase emulsion stability and gel strength of blends. The viscosity and gel strength will increase after experiencing the shear and temperatures downhole. Take caution not to over treat blend, which can result in unacceptable viscosity on returning fluid.

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