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Method to prepare Semtex

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Method to prepare SEMTEX

This method has been modified from United States Patent 3,138,501 (June 23, 1964)

This procedure requires the binder and uncoated RDX be prepared in separate steps, see Figure 1.

1. The binder and dye are mixed by agitation with a water-insoluble organic solvent (e.g., toluene), **I**.
2. The RDX/PETN is agitated thoroughly with water, **II**.
3. The binder solution **I** is added to the RDX/water mixture at **II** with thorough mixing to form a slurry **III**.
4. In the next step the solvent is distilled off at **IV** leaving resulting granules.
5. The next step is followed by filtration at **V**, which may be done by vacuum.
6. The composition is then dried at **VI** to a dough-like consistency.

Illustrative Example Only:

Binder Preparation:

Add the 12.5 grams binders and dyes to 130 grams of toluene. Agitate the mixture at 60 – 70° C for 1.5 hours. Add 29.5 grams di (2-ethylhexyl) sebacate and mix well. Cool to 30° C

Granulation:

Add 5 liters of water to a 10 liter granulator, add 150 grams of RDX/PETN. Add 0.1 gram of gelatin, and heat the slurry to 65°C. Add the binder over a 1-2 minute period with agitation set 450 to 500 r.p.m. Heat the mixture to 99.5 to 100° C. Cool the slurry to 60° C. Transfer the slurry to a vacuum filter and remove the water. Dry the product at 50 – 60° C, using an air dryer for 2.5 hours.

Figure 1. **Preparing SEMTEX**

