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LANL Classification Group  
LANG 6-5-98

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20 January 1945

Capt. Ackerman and Lt. Hopper

G. B. Kistiakowsky

Composition B, Present and Future

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MacDougall has just informed me that our 100-ton order has been completed by the Holston Ordnance Works. According to Dr. Davy, their Chief Chemist, the viscosity on the standard viscosimeter varies from 8 to 14 seconds, which, on the average, corresponds to 10 poise at 90°. RDX used in this batch will all go through 15 mesh screen so that one should expect relatively little segregation. The material will be sent here with the full quantity (40 parts) of TNT so that it will not be necessary to dilute it.

In answer to MacDougall's question as to the particle size which Holston can produce to our specifications, Dr. Davy adopted superior airs and said that they could make any particle size, or particle size distribution, that we would specify. In their present normal production they do not use colloid mills but control particle size directly by precipitation. However, they have these mills standing by in the line so that, Davy maintains, any particle size, or size distribution, which we wish, can be obtained by suitable combination of precipitation conditions, grinding and blending.

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In view of this I believe we should take Davy at his word and work out here a mixture of RDX and TNT which will be particularly suitable for our large castings (I assume that the 10 poise material will be good for lenses and small stuff). As we all agree this new blend should combine the following properties: (a) Highest RDX content and casting density for maximum power; (b) lowest segregation rate; and (c) adequate filling out of corners in the molds. I would suggest that using our available wet RDX, it be screened into close cuts of particle sizes, and that an attempt be made to blend these into the material we want. I probably do not need to remind you that in carrying out this operation it is necessary to cook the mixture for several hours to simulate the conditions under which Holston makes its material; otherwise the viscosity - pourability relation will be quite different. To reduce the screening job one may pour the melt into small molds (cylinders?) but to hold these for several hours above the melting temperature before starting the cooling process, so as to simulate more closely the conditions existing in large molds.

CLASSIFICATION CANCELLED  
PER DGC REVIEW JAN. 1973

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