

Mr. Tolson \_\_\_\_\_  
 Mr. E. A. Tamm \_\_\_\_\_  
 Mr. Clegg \_\_\_\_\_  
 Mr. Glavin \_\_\_\_\_  
 Mr. Ladd \_\_\_\_\_  
 Mr. Nichols \_\_\_\_\_  
 Mr. Rosen \_\_\_\_\_  
 Mr. Tracy \_\_\_\_\_  
 Mr. Carson \_\_\_\_\_  
 Mr. Coffey \_\_\_\_\_  
 Mr. Hendon \_\_\_\_\_  
 Mr. Kramer \_\_\_\_\_  
 Mr. McGuire \_\_\_\_\_  
 Mr. Harbo \_\_\_\_\_  
 Mr. Quinn Tamm \_\_\_\_\_  
 Tele. Room \_\_\_\_\_  
 Mr. Nease \_\_\_\_\_  
 Miss Beahm \_\_\_\_\_  
 Miss Gandy \_\_\_\_\_



**Federal Bureau of Investigation**  
**United States Department of Justice**  
 Washington, D. C.

December 4, 1942

MEMORANDUM FOR MR. TRACY

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Mr. E. A. Tamm requested that the Laboratory make a special and confidential study of the fire proofing material supposedly used on the decorations in the Coconut Grove Night Club fire in Boston. The study was to be predicated upon allegations that many of the victims died of a toxic gas and that this gas might have been a product of the burning of the fire proofing material. This examination has been conducted by Messrs. [redacted] and [redacted].

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We made a study of duPont's fire retardant "CM." The information that this was probably the fire proofing material used was obtained in a round-about manner. Special Agent [redacted] of the Boston office interviewed United States Attorney Brandon who stated that one [redacted], provided Brandon with the name of this fire proofing material. [redacted] further advised Brandon that the same material was used in all the Boston night clubs. He also advised Brandon that he had personally tested this solution that same morning and his tests indicated that the substance is explosive and that following the explosion a considerable quantity of dark smoke and a peculiar odor [redacted] very much in evidence. His technical qualifications were not furnished.

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The Laboratory obtained an adequate sample of duPont's fire retardant from the Bureau of Standards without disclosing the nature of our interest. It was not found possible to buy any of this fire proofing locally and the information we received was that the Army and Navy have bought up the whole available supply. At the Bureau of Standards Mr. [redacted] talked with Dr. [redacted]. He found that the Bureau of Standards was well acquainted with the duPont fire retardant and had on file a technical report concerning the preparation by the duPont Company. A copy of this report is attached to this memorandum. In his conversation with them, Mr. [redacted] was advised that the commercial products, including the duPont, are no better than materials that can be easily made containing borax; that the duPont "CM" rated well with the best of the flame proofing materials, had good wetting qualities but otherwise was not absolutely fire proof. They had not investigated the possible toxicity of the fire proofing material.

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DuPont's "CM" fire retardant is found to consist principally of ammonium sulfamate which is a well-known material used for fire retardant mixtures. The formula also contains some ammonium phosphate and a wetting agent. These materials would not in themselves be considered dangerous when used externally in any way.



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Burning tests were conducted of the duPont fire retardant. We were advised that most of the decorations in the night club consisted of cloth strips and artificial palm trees which had been sprayed with the fire proofing material, and in our Laboratory tests comparable strips of cloth were first completely wetted with the recommended fire proofing material after it had been mixed with water in accordance with the manufacturer's recommendation. After the samples had been dried, flame tests were conducted which disclosed the material to be an effective fire retardant. It was not possible to ignite the material either with a match or with a Bunsen burner. The material would char but no glow was observed at the lower flame temperatures used. 47336

Upon the theory that the Boston decorations might have been inadequately sprayed with the preparation, further tests were then conducted with strips of cloth in such a way that some areas were covered with the fire proofing and some were untouched. Those portions of the cloth which were sprayed sufficiently to be wet were effectively flame proof; those portions that were not sprayed to the extent that the cloth was wet would burn as ordinary cloth. The consuming fire would find its way through the untreated portions, leaving unburned the treated portions.

Heat applied to the fire retardant in its raw state failed to produce any toxic gases other than a very small quantity of ammonia. Similar results were obtained with the cloth treated with the material, but, in addition to the small amount of ammonia, carbon monoxide was also produced by those portions of the cloth that had not been touched by the fire retardant material. As a result, the examiner is of the definite opinion that the amount of injurious gas (other than carbon monoxide) produced from the fire retardant material would not be fatal. Particularly is this true in conjunction with his observation that the deadly carbon monoxide gas was produced faster and in greater quantities from the burning cloth that had been untreated by the fire retardant.

It is here observed that the production of carbon monoxide gas which is definitely a toxic gas will generally result where organic material burns. The production of this gas is greatly increased as the supply of oxygen decreases in the place where the burning occurs. In other words, in the burning of such organic material in a confined area in which the normal flowing supply of oxygen in the form of fresh air is restricted, a large production of carbon monoxide is to be expected. The production of carbon monoxide is in no sense related to the presence of the fire proofing material. In addition to the organic factors in the cloth it is pointed out that artificial palms and rattan would be entirely organic and are especially favorable to the production of carbon monoxide. In the normal burning of these organic materials where an ample supply of oxygen and fresh air is present the gas's by-product is predominately carbon dioxide, which is ~~wet~~ a non-toxic gas. As the supply of fresh air and thus the supply of oxygen is decreased, the amount of the by-product carbon dioxide decreases and the by-product carbon monoxide (a fatal poison) greatly increases. 11

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Memorandum for Mr. Tracy

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// With regard to the possible explosive qualities such as reported by Mr. [redacted] our explosives expert determined that the fire retardant in itself is not explosive, nor is cloth treated with the fire retardant in any sense explosive. He conducted all the well-established explosive tests which would be applicable. //

In conclusion it is again pointed out that we worked on duPont's retardant "CM" which has been indirectly reported to us through the United States Attorney at Boston as having been the fire proofing material used in the Coconut Grove Club. It is observed that the sample used for the above-described tests was obtained from the Bureau of Standards which may have been supplied directly by the duPont Company and no information is at hand as to whether this sample is representative of the product commercially distributed in Boston. If it should subsequently develop that some other so-called fire proofing material was used or if the duPont CM was used but does not correspond to the sample which the Laboratory obtained, then tests of that substance would be recommended. For reference and file purposes two additional publications on flame proofing materials are attached hereto.

Respectfully,

  
E. P. Coffey

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Enclosures