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HW-26242

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HANFORD ATOMIC PRODUCTS OPERATION - RICHLAND, WASHINGTON

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TITLE

PURCHASE AND ACCEPTANCE SPECIFICATIONS FOR 70-58 REVISION NO. 1

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Re-reviewed 6/18/79  
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PURCHASE AND ACCEPTANCE  
SPECIFICATIONS FOR 70-58  
REVISION NO. 1

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### INTRODUCTION

Specifications and acceptance procedures for Essential Material 70-58 were recommended in June, 1949 by document HW-13594.(1) These specifications were written prior to either collection of data, or accumulation of experience, from the use of this Essential Material at the Hanford Works. Consequently, the specifications in use at Los Alamos at that time were used as a basis for the recommendations given in HW-13594.(1)

Revised specifications are given below which are recommended for inclusion in HW-19156(2) and for future use in purchasing and handling 70-58.

### ADVANTAGES OF NEW SPECIFICATIONS

1. The new specifications establish quantitative limits for heavy element impurities and a limit for the summation of all heavy element impurities. The most impure 70-58 acceptable in accordance with these specifications would contribute an insignificant percentage of impurity to the final product. The previous specifications listed quantitative specifications for only ten elements and required that all other elements be "not detectable". This imposed a more stringent specification on some heavy element impurities than necessary and, in the past, has required unnecessary reviews and special handling of acceptable 70-58.
2. The new specifications include quantitative specifications for all light element impurities which are detrimental in our final product except oxygen and fluorine. The latter have been excluded since sources of their introduction are inherent in production processes in quantities greater than could conceivably be present in the 70-58. In addition, and most important, is the inclusion of the light element impurities in the list of elements that must be "tested for" at the Hanford Works after receipt of the 70-58 and before it is released for use. The previous specifications did not require tests for boron and carbon as a part of the acceptance procedures. The most impure 70-58 acceptable in accordance with the new procedures would contribute 0.025 to the total c/q summation for light element impurities in the final 234-5 Building product.

(1) HW-13594, Secret, "Request For Additon To Specifications and Acceptance Procedures For Essential Material", June 8, 1949, B. Weidenbaum.

(2) HW-19156, Confidential, "Specifications, Acceptance and Sampling Procedures For Essential Materials", May, 1951, E.W. Rebol.

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SPECIFICATIONS

Purchase Specifications

<u>Element</u>	<u>Quantity Required or Permitted</u>
1. 70-58	>99 per cent by difference or by analysis.
2. Al	200 ppm <sup>(1)</sup> Maximum
3. B	5 ppm Maximum
4. Be	2 ppm Maximum
5. C	500 ppm Maximum
6. Li	50 ppm Maximum
7. Mg	100 ppm Maximum
8. Na	100 ppm Maximum
9. Si	500 ppm Maximum

No other element should be present in amounts greater than 1000 ppm and the summation of quantities of all other elements must not exceed 7500 ppm.

(1) ppm = parts of impurity per million parts 70-58.

Acceptance Specifications

Test for:

70-58\*

- |        |        |        |
|--------|--------|--------|
| 1. Ag  | 12. Cr | 23. Mo |
| 2. Al  | 13. Cu | 24. Na |
| 3. As  | 14. Fe | 25. Ni |
| 4. B   | 15. Ge | 26. P  |
| 5. Ba  | 16. Hg | 27. Pb |
| 6. Be  | 17. In | 28. Sb |
| 7. Bi  | 18. K  | 29. Si |
| 8. C   | 19. La | 30. Sn |
| 9. Cd  | 20. Li | 31. Sr |
| 10. Co | 21. Mg | 32. Tl |
| 11. Co | 22. Mn | 33. V  |
|        |        | 34. Zn |

Quantities of elements required or permitted are the same as those listed in the purchase specifications.

\* When analytical procedures are developed for quantitative determinations of 70-58 these procedures should be used in lieu of the "by difference" quantity currently accepted.