From: Commanding Officer, Naval Air Engineering Center, Phila., Pa. 19112
To: Commander, Naval Air Systems Command (AIR 520331)

Subj: Assignment 2-21(13H) Cresol, Substitution for in Cleaning Compound Formulations in Specifications; Report No. NAEC AML 2504, Detoxication and Disposal of Cresol-Containing Waste from Cleaning Operations

Ref: (a) NAVAIRSYSCOM HQ AIRTASK AIR320 013 200/1 F020 03 01 of 15 Oct 1963
(b) Military Specification MIL C-19853A(WEP) Carbon Removing Compounds; Agitated Tank
(c) Military Specification MIL-R-18552A(WEP) Remover, Paint, Non-flammable, Water Rinsable, Usable in Contact with Synthetic Rubber

1. The subject assignment was established under reference (a) to provide efficient cleaning compounds which are cresol-free. Several of the cleaning compounds used by the field activities engaged in maintenance and overhaul work contained cresol, or other phenolic compounds as ingredients in their formulations. Elimination of ingredients of this type was considered necessary since their biocidal properties made their ultimate discharge into sewage systems objectionable.

2. The elimination of cresol from various specification items has been covered by partial reports previously issued under this assignment. However, its elimination from all cleaning compound formulations has not been accomplished as, for example, the widely used carbon remover procured under the reference (b) specification. Although neither industry nor the Aeronautical Materials Laboratory has been able to develop a cresol-free material equal to the reference (b) material in performance, it is felt that effective substitute materials may be discovered in the investigation of new chemical materials authorized by assignment 2-04(13H).

3. Until such a time as cresol and other phenolic compounds have been totally eliminated, it is felt that the minimal amounts of these materials remaining in use can be rendered safe for disposal by suitable pretreatment. Although the development of the equipment involved is outside the scope of this assignment, investigations have revealed that adequate pretreatment could be economical.
accomplished by either of the two processes currently used by industry. These consist of removing the cresols by steam stripping and recovery for future use, or by acidification and disposal of the cresol-bearing layer by burning. Much of the necessary equipment such as reservoirs, tanks, filters, valves, pumps, may be found idle in the storage areas of any large installation.

4. Authorized work on the subject problem assignment has been completed. This report is final and the assignment is considered closed.

R. L. ABBOTT
By direction

Copy to:
Naval Air Stations
NAFI
BWFRGCEN
AFSC Liaison Officer, NADC,
Johnsville, Pa.
NAVAIRSYSCOMHQ (AIR 4142B)
WESO, NAVAIENGcen
 Toxication and Disposal of Cresol-Containing Waste from Clearing Operations

Abstract

Assignment 2-21 was established to provide efficient cleaning compounds which are cresol-free. Elimination of ingredients of this type was considered necessary since their biocidal properties made their ultimate discharge into sewage systems objectionable. Although neither industry nor the Aeronautical Materials Laboratory has been able to develop a cresol-free material equal to the specification MIL-C-19853A(WP) material in performance, it is felt that effective substitute materials may be discovered in the investigation of new chemical materials authorized by assignment 2-04(13H).
<table>
<thead>
<tr>
<th>KEY WORDS</th>
<th>LINK A</th>
<th>LINK B</th>
<th>LINK C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning compounds</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSTRUCTIONS**

1. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization (corporate author) issuing the report.

2a. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.

2b. GROUP: Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.

3. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.

4. DESCRIPTIVE NOTES: If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.

5. AUTHOR(S): Enter the name(s) of author(s) as shown on or in the report. Enter last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.

6. REPORT DATE: Enter the date of the report as day, month, year, or month, year. If more than one date appears on the report, use date of publication.

7a. TOTAL NUMBER OF PAGES: The total page count should follow normal pagination procedures. I.e., enter the number of pages containing information.

7b. NUMBER OF REFERENCES: Enter the total number of references cited in the report.

8a. CONTRACT OR GRANT NUMBER: If appropriate, enter the applicable number of the contract or grant under which the report was written.

8b, 8c, & 8d. PROJECT NUMBER: Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.

9a. ORIGINATOR'S REPORT NUMBER(S): Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to this report.

9b. OTHER REPORT NUMBER(S): If the report has been assigned any other report numbers (either by the originator or by the sponsor), also enter this number(s).

10. AVAILABILITY/LIMITATION NOTICES: Enter any limitations on further dissemination of the report, other than those imposed by security classification, using standard statements such as:

   (1) "Qualified requesters may obtain copies of this report from DDC."

   (2) "Foreign announcement and dissemination of this report by DDC is not authorized."

   (3) "U. S. Government agencies may obtain copies of this report directly from DDC. Other qualified DDC users shall request through ."

   (4) "U. S. military agencies may obtain copies of this report directly from DDC. Other qualified users shall request through ."

   (5) "All distribution of this report is controlled. Qualified DDC users shall request through ."

If the report has been furnished to the Office of Technical Services, Department of Commerce, for sale to the public, indicate this fact and enter the price, if known.

11. SUPPLEMENTARY NOTES: Use for additional explanatory notes.

12. SPONSORING MILITARY ACTIVITY: Enter the name of the departmental project office or laboratory sponsoring (paying for) the research and development. Include address.

13. ABSTRACT: Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.

   It is highly desirable that the abstract of classified reports be unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as (TS), (S), (C), or (U).

   There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.

14. KEY WORDS: Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words must be selected so that no security classification is required. Identifiers, such as equipment model designation, trade names, military project code name, geographic location, may be used as key words but will be followed by an indication of technical context. The assignment of links, roles, and weights is optional.