

*Handwritten scribbles at the top of the page.*

~~Security Information~~

UNCLASSIFIED

Reports Control  
Symbol DDRDB-3

~~CONFIDENTIAL~~

Chemical Corps  
Research and Development  
Progress Report  
[Cumulative]

31 December 1951



RESEARCH AND ENGINEERING COMMAND  
Army Chemical Center, Maryland

*Ho 1473*

DOWNGRADED AT 12 YEAR INTERVALS;  
NOT AUTOMATICALLY DECLASSIFIED.  
DOD DIR 5200.10

Copy Number 15

~~Security Information~~

~~CONFIDENTIAL~~

*HO 1473*

UNCLASSIFIED

UNCLASSIFIED

~~CONFIDENTIAL~~  
~~Security Information~~

RESEARCH AND DEVELOPMENT PROGRESS REPORT (C)		2. SEC. S	3. PROJ. NO. 4-08-03-005	
1. PROJECT TITLE Agent GB			4. INDEX NO.	
6. BASIC FIELD OR SUBJECT.			5. REPORT DATE 31 Dec 51	
8. COGNIZANT AGENCY Cml C			7. SUBFIELD OR SUBJECT SUBGROUP CW-1a	
9. DIRECTING AGENCY Cml & Rad Labs, A Cml C, Md.		12. CONTRACTOR AND/OR LABORATORY		CONTRACT/W.O.NO.
10. REQUESTING AGENCY		13. RELATED PROJECTS		17. EST. COMPL. DATES
11. PARTICIPATION AND/OR COORDINATION		14. DATE APPROVED		RES.
		15. PRIORITY I-B		DEV.
		16. MAJOR CAT.		TEST
				OP EVAL.
				F Y 18. FISCAL EST'S.
				52 103M
				53 200M
19.				
20. REQUIREMENT AND/OR JUSTIFICATION a. No change. b. Block 18 changed.				
21. BRIEF OF PROJECT AND OBJECTIVE a. through d. No change.  e. Background. The laboratory development on this project has been devoted almost entirely to experimental work which supports the design and construction of a GB plant. Compounds have been made when required by contractors and other personnel in fundamental investigations, and when required for the measurement of physical constants. Development of new and improved analytical procedures required the synthesis of certain new derivatives in a cooperative effort with the analysts. Engineering data for plant design were obtained on a process-laboratory scale in connection with the fifth step of the GB process and the combination of the fourth and fifth steps. Under a blanket contract with Universal Oil Products Co., the information required for GB plant design is being obtained by a large number of contractors, whose tasks were outlined in a comprehensive document known as the Rueggeberg-Meissner report. In the work done under these tasks several new syntheses of GB have been discovered.  Progress During Period (b)(3):10 USC 130,(b)(2) HIGH				
22. RDB	SN.	FC.	IC & P.	X. I. C.

RDB FORM 1A, 1 APR 1947

WDGRD-~~CONFIDENTIAL~~ PAGE 1 OF 4 PAGES

UNCLASSIFIED

~~CONFIDENTIAL~~  
~~Security Information~~

CN

~~CONFIDENTIAL~~

UNCLASSIFIED

~~SECRET~~

4-08-03-005 - CMLC PROGRESS REPORT (C) (Contd.)  
Agent GB

4-08-0  
Agent

21. e. Continued.

21. e.

(b)(3):10 USC 130,(b)(2) HIGH

ste  
inc  
(Pe  
mec  
uti  
low  
GB-  
The  
  
Unc  
pro  
inv  
bee  
.but  
bee  
lab  
tio  
tha  
pro  
has  
tor;  
ing  
ager  
wou  
zat  
pra  
four  
alur  
is l  
chlc  
meth  
cont

f. Futu  
Larg  
ther  
and  
scal  
synt  
sist  
of G  
for  
surv  
conc  
cedu  
infr  
are;  
plan  
and  
ment

~~CONFIDENTIAL~~

UNCLASSIFIED

~~SECRET~~

~~CONFIDENTIAL~~

~~Security Information~~

4-08-03-005 - CMEC PROGRESS REPORT (C) (Contd.)  
Agent GB

21. e. Continued.

(b)(3):10 USC 130,(b)(2) HIGH

f. Future Plans.

Largely under contract with the Bureau of Standards, thermochemical and thermodynamic data will be obtained for various phases of GB synthesis, and work will be concluded on the mechanism of the fifth step. Laboratory-scale work will be continued on the synthesis of intermediates in the GB synthesis as required for studies in CRL and by various contractors. Assisted by contracts, improved reactions will be sought for field detection of GB and for macroanalytical estimation of GB. Search will be continued for a low-molecular-weight stabilizer for GB effective under standard surveillance temperature conditions. Process-laboratory studies will be concentrated on the combination fourth and fifth step process. A procedure will be formulated for estimation of GB purity in plant samples by infrared analysis. Among the more important plans under the UOP contract are: (1) the ASP and salt processes will be investigated on a pilot-plant scale, (2) laboratory development will be continued on the TIPP and Grignard processes, and (3) on the DMHP process, laboratory development will be continued to improve the purification of DMHP in step 1,

UNCLASSIFIED

Page 3 of 4 Pages

~~SECRET~~

~~CONFIDENTIAL~~  
~~SECRET~~

UNCLASSIFIED

4-08-03-005 - CMLC PROGRESS REPORT (C) (Contd.)  
Agent GB

21. f. Continued.

to improve the pyro product in step 2, and to determine the optimum step 3 chlorination process.

g. References.

An Evaluation of the Manufacturing Processes for GB, by H.P. Meissner and W. H. C. Rueggeberg, ETF 107.6-13, Parts I and II.

Progress reports and final reports on various tasks under the Universal Oil Products contract.

Infrared Absorption Studies of the Systems GB·HCl and GB·HF, H. Tannenbaum and J. Goldenson, CRLR 18, 4 October 1951.

CRLIR 33, The Resistance of Several Paints Toward Methylchlorophosphine Oxide, by L. C. Buckles.

CRLIR 31, The Preparation of Some Dialkylated Fluorophosphine Oxides, by T. P. Dawson.

RESEARCH

1. PROJECT

Special

6. BASIC

8. COGNIZ

CmlC

9. DIRECT

Cml &

10. REQUE

11. PARTIC

19.

20. REQUI

a. No

b. Bl

21. BRIEF

a. th

e. B:

Th

si

i'

a

o

l

at

am

A

t

p

o

P

A

2

s

(

t

a

t

c

22. RDE

RDB FO

UNCLASSIFIED

~~CONFIDENTIAL~~

~~SECRET~~