

W 11 - 1 - 1

~~SECRET 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

~~SECRET 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 1-B		DEV.
		16. MAJOR CAT.		TEST
				OP EVAL.
				F Y 18. FISCAL EST'S.
				52 103M
				53 200M
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.				
22. RDB SN. FC. IC & P. X. I. C.				
RDB FORM 1A, 1 APR 1947				

Progress During Period.

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

02

UNCLASSIFIED

~~CONFIDENTIAL~~
~~Security Information~~

~~CONFIDENTIAL~~

UNCLASSIFIED

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

Und
pro
inv
bee
.but
bee
lab
tio
tha
pro
has
tor
ing
ager
wou
zat
pra
four
alur
is l
chlc
meth
cont

f. Futi
Larg
ther
and
scal
synt
sist
of C
for
surv
conc
cedu
infr
are
plan
and
ment

~~CONFIDENTIAL~~ ~~SECRET~~

UNCLASSIFIED

~~SECRET~~ ~~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~~ ~~Security Information~~

~~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^oHCl and GB^oHF, 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. PARTI

19.

20. REQUI

a. No

b. Bl

21. BRIEF

a. th

e. B:

Th

st

i'

a

o

l

ar

t

a

m

A

t

p

o

P

A

2

s

(

t

a

t

c

22. RDE

RDB FO

UNCLASSIFIED

~~CONFIDENTIAL~~

~~SECRET~~