

H.Q. 8 4354-29-5-4
Vol 1.

DEAD

VOLUME

2

FOLLOWS

21 / 1 / 44

1

NO FURTHER CORRESPONDENCE TO BE PLACED ON THIS FILE

(A)

54350-29-5-4

IN REPLY PLEASE QUOTE

NO. CML-8-15-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 14 Jan

1944

SECRET

D.C.W.A.S.,
New Army Building,
Cartier Square,
Ottawa, Ontario.

I am enclosing for your information Copies
No. of the following report(s):

Copies - 1, 2, 5, 6, 7, 8, 9, 10, 13, 14, 29.

Physiological Section Report No. 30.
" Routine Physiological Tests with Ointment S-330."

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

DB/V
ENCLOS

(Mrs.) D. Bate,
for Superintendent of Research.

17-1-44



ack
sent
D.D.
15/1/44

D. Bate - PA 84354-29-5-4

54304-29-5-4

IN REPLY PLEASE QUOTE

NO. CME-8-15-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

13 JAN 1944

OTTAWA, Ontario, 13 Jan 1944

SECRET

D.C.V.A S..
New Army Building,
Cartier Square,
Ottawa.

I am enclosing for your information Copies
No. of the following report(s):

Copies - 1, 2, 5, 6, 7, 8, 9, 10, 13, 14,-

Physiological Note No. 34.

"Notes on a Meeting of Section 9:5 of Div. 9 HIRC
Physiological Mechanisms of Chemical Warfare Agents".

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

M. Bates

(Mrs.) D. Bates,
for Superintendent of Research.

MB/Y
Encls.



PA 24354-29-5-4

15-1-44



CANADA

MEMORANDUM

~~SECRET~~
SECRET

TO: DSD (W)

DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4354-29-5-4 (DCW & S)

DATE: 12 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your information
and retention, please find copy No. 29 of the
following report(s)

Physiological Section Report No. 31.



for D.C.W. & S.

PA 84315-V-29-5-4

12-1-44

QC

54354-29-5-4

IN REPLY PLEASE QUOTE

W. CML-8-15-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 6 Jan. 1944

SECRET

D.C.W. & S.,
New Army Building,
Cartier Square,
Ottawa.

I am enclosing for your information Copies
No. 5, 6, 7, of the following report(s):

3, 9, 10, 13, 14 and 29

Physiological Section Report No. 28

The Treatment of H Lesions of Human Skin with
Sodium Sulphide Solutions

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

A. Kato

(Mrs.) D. Bate,
for Superintendent of Research.

pa 2 4354-29-5-4

7-1-44 ac



MEMORANDUM

SECRET

TO: D.S.D. (N)

DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4354-29-5-4 (DCN & S)

DATE: 6 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your information and retention, please find copy No. 29 of the following report(s)

C.W.D. Physiological Warfare 27 and 29



for D.C.W. & S.

P.A. 8454-29-5-4

7-1-44

ac

MEMORANDUM

SECRET

TO: D.S.D. (W)

DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4354-29-5-4 (DOW & S)

DATE: 7 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your information and retention, please find copy No. 29 of the following report(s)

Pathological Section Report No. 28.



for D.C.W. & S.

PA 84354-29-5-4

7-1-44

Ac

54354-29-5-4



IN REPLY PLEASE QUOTE

No. CML-8-15-2-5

DEPARTMENT OF NATIONAL DEFENCE

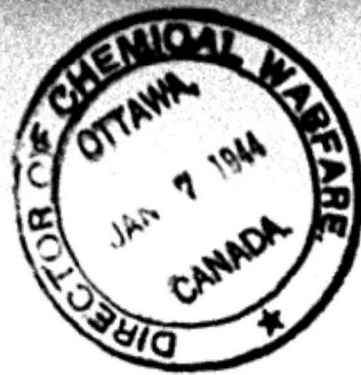
ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 6 Jan. 1944

SECRET

D.C.M. & S.,
New Army Building,
Cartier Square.



I am enclosing for your information Copies
No. 1 & 2 of the following report(s):

Physiological Section Report No. 28

The Treatment of H Lesions of Human Skin with Sodium
Sulphide Solutions

*ent
D.C.M.
7/1/44*

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

PA 44354-29-5-4

*7-1-44
AC*

MEMORANDUM

SECRET

TO: D.S.D.(W)

H.J.S. 4354-29-5-4 (DCWAS)
4354-29-6 (DCWAS)

DATE: 6 Dec 43

Canadian Chemical Warfare Reports

Forwarded herewith, for your
distribution, please find copy No.
of the following report(s)

CWL Physiological Section Report 26
Extramural Physiological Report CP 42

gfa
for D.C.W. & S.

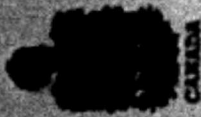


1.4.
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EF

8000-29-6-4

IN REPLY PLEASE QUOTE

NO. CWM-8-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 5 Jan 1944

SECRET

D.C.V.A.S.,
New Army Building,
Cartier Square,
Ottawa, Ont.

I am enclosing for your information Copies
No. of the following report(s):

Copies No. 1, 2, 5, 6, 7, 8, 9, 10, 13, 14, 29

Physiological Section Report No. 29.

Toxicity of Nitrogen Oxides and Container
Penetration Tests.

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

DE/V
ENCLOS.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.



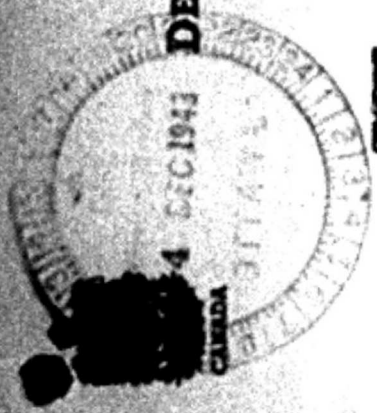
Handwritten signature/initials

Handwritten initials

7-

54304-29-6-4

BY REPLY PLEASE QUOTE
No. CW-8-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WEAPON LABORATORIES

OTTAWA, Ontario, 4 Dec 1943



SECRET

D.C.V & S.,
New Army Building,
Cartier Square,
Ottawa.

I am enclosing for your information Copies
No. of the following report(s):

Physiological Section Report No. 26.
"The Action of Mustard Gas upon Antibodies."

Copies 1 - 2 for D.C.V & S.
" 5 - 5 " C.M.H.Q. (Lt.-Col. Sanger)
" 7 - 10 " Min. of Supply (C.C.D.D) England
" 13 - 14 " Australia

Copy 29 - DSD(V)
May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

*outstanding
12/43*

*P.A.
14354-29-5-4*

*E.F.
D/B./V
Encls.*

54884-29-5-4

IN REPLY PLEASE QUOTE

NO. CML-S-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 25 Nov 1943

National Research Council Building.

SECRET

D.C.W & S.,
New Army Building,
Cartier Square,
Ottawa.

For transmission to Australia.

I am enclosing for your information Copies
No. 13 - 14 of the following report(s):

Physiological Note No. 32.

Notes on a Meeting of M.D.R.C. 9:4:1 (Toxicity)
Committee Held in Chicago, Nov. 11th, 1943.

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

B. Lang

for (Mrs.) D. Bate,
for Superintendent of Research.

MUM/V
Encls.

54884-295-4

CF

54254-29-5-4

IN REPLY PLEASE QUOTE

CM-8-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 25 Nov 1943

National Research Council Building.

SECRET

D.C.W. & S.,
New Army Building,
Cartier Square,
Ottawa.

For transmission to C.K.H.Q.
(Lt.-Col. Sawyer)

I am enclosing for your information Copies
No. 5 - 6 of the following report(s):

Physiological Note No. 32.
Notes on a Meeting of H.D.E.C. 9:4:1 (Toxicity)
Committee held in Chicago, Nov. 11th, 1943.

*ack
forwarded
54354-20-1-1
26/43*

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

54254-29-5-4
MM/V
ENCLOS.
CF.

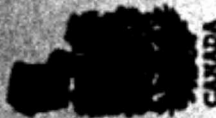
B. Lang

for (Mrs.) D. Bates,
for Superintendent for Research.

54264-29-5-4

IN REPLY PLEASE QUOTE

No. CML-8-15-2-5



CANADA

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 25 Nov 1943

National Research Council Building

SECRET

D.C.M. & S.,
New Army Building,
Cartier Square,
Ottawa.

For transmission to England.
(Min. of Supply)

I am enclosing for your information Copies
No. 7 - 10 of the following report(s):

Physiological Note No. 32.
Notes on a Meeting of N.D.R.C. 9:4:1 (Toxicity)
Committee held in Chicago, Nov. 11th, 1943.



May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

B. Lang

for (Mrs.) D. Bate,
for Superintendent of Research.

MM/V
Encls.

*ackd
forwarded
26 11/23*

*154
54-24-5-4
PS*

24354-29-5-4

IN REPLY PLEASE QUOTE

No. CWL-8-15-2-5



**DEPARTMENT OF NATIONAL DEFENCE
ARMY**

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 9 Nov.



SECRET

D.C.W. & S..
New Army Building,
Cartier Square,
Ottawa, Ont.

I am enclosing for your information Copies
No. 13 & 14 of the following report(s): for transmission to Australia.

Physiological Section Report No. 25. Toxicity tests of the
methiodide of 2 methyl 5 dimethylaminophenyl N-methyl
carbamate.

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

B. Lang

for (Mrs.) D. Bates,
for Superintendent of Research.

HAT

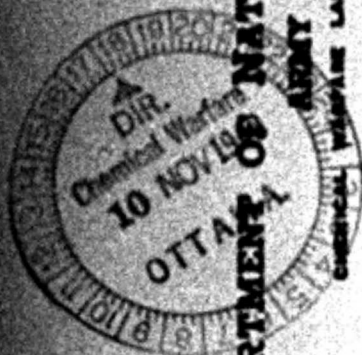
24354-29-5-4

*ack
Lang
15 Nov 43*



34304-24-5-4

IN REPLY PLEASE QUOTE
No. CML-8-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 9 Nov. 1943

SECRET

D.O.W. & S.,
New Army Building,
Cartier Square,
Ottawa, Ont.

I am enclosing for your information Copies
No. 1 & 2 of the following report(s):

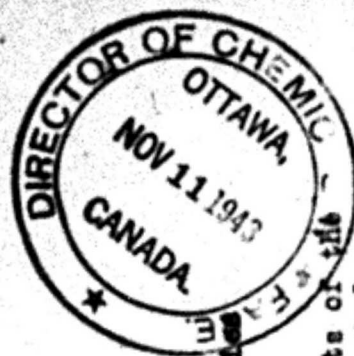
Physiological Section Report No. 25. Toxicity tests of the
methiodide of 2 methyl 5 dimethylaminophenyl N-methyl
carbamate.

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

B. Lang

for (Mrs.) D. Bate,
for Superintendent of Research.

HAT



Handwritten notes:
3944-24-5-4
34304-24-5-4

A circular stamp from the Department of Chemical Warfare, Ottawa. The outer ring contains numbers 1 through 12. The inner text reads: "DIR.", "Chemical Warfare", "10 NOV 1944", and "OTTAWA". The words "DEPARTMENT OF CHEMICAL WARFARE" are written vertically along the right edge of the stamp.

DO NOT PLEASE QUOTE

011-9-15-2-5

DEPARTMENT OF NATIONAL DEFENCE
ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 9 Nov. 1943

SECRET

D.C.W. & S.,
New Army Building,
Cartier Square,
Ottawa, Ont.



I am enclosing for your information copies
No. 7 to 10 of the following report(s): for transmission
Ministry of Supply (CCMD) England.

Physiological Section Report No. 25. Toxicity tests of the methiodide of 2 methyl 5 dimethylaminophenyl N-methyl carbamate.

May receipt of this report be acknowledged please by signing and returning the lower portion of this letter.

B. Long

(Mrs.) D. Bates,
for Superintendent of Research.

WHAT

000218

54354-29-5-4

BY REPLY PLEASE QUOTE

No. CML-8-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, Sept. 20, 1943

SECRET

Director of Chemical Warfare and Smoke,
New Army Building,
Cartier Square,
Ottawa, Ont.

I am enclosing for your information Copies
No. 1 & 3 of the following report(s):

Physiological Test Report No. 110. Liquid H Decontamination, H
Vapour Prophylaxis and Irritancy Tests with Ointment C.W.L. 1.

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

d. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

Encl.
DB/HAF



ack'd 9/24/43

54354-29-5-4
ES

COPY

54877-29-8-8

CANADA



Chemical Warfare Laboratories, Ottawa

Physiological Test Report No. 110

Copy No. 3 of 7

September 18th, 1943

Liquid H decontamination, H Vapour Prophylaxis and
Irritancy Tests with Ointment C.W.L. 1

ABSTRACT

Ointment C.W.L. 1 is a satisfactory decontaminant for liquid H and a good prophylactic against H vapour. It is moderately irritant, and is in all respects similar to the original S-461 Cream.

INTRODUCTION

Ointment C.W.L. 1 is stated to have the following composition:-

C.W.L. No. 1 ----- 33-1/3 - 35%
Triacetin ----- 50%
Magnesium Stearate ----- 16-2/3 - 15%

The sample consisted of two 1 lb. jars of ointment, the consistency of which was softer than S-461 Cream from Norwich Pharmaceutical Company.

CENTRAL ARMY LABORATORY

5434-29-5-4

QUOTE NO. 943-8-13-2-3



CANADA

DEPARTMENT OF NATIONAL DEFENCE
SECRET
ARMY

D.C.V. & S.,
New Army Building,
Cartier Square,
Ottawa, Ont.

OTTAWA, CANADA, September 16, 1943,
National Research Council Building.

I am enclosing for your information Copies
No. 1 & 2 of the following reports:

Physiological Note No. 29. Notes on meeting of the physiological
mechanisms committee.

Physiological Note No. 30. Notes of a meeting to discuss anti-gas
ointments held in New York, August 27th, 1943.

Physiological Note No. 31. Notes on a meeting of the sub-committee
on the formulation of RAL ointments held in New York, Sept.
2, 1943.

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

*ackd
9/17/43*

*7A-4-245-4
1035-4-63*

Encl.
CL

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research



CHEMICAL WARFARE LABORATORIES

54357-29-5-4

NOTE NO. CW-8-15-2-5



CANADA

DEPARTMENT OF NATIONAL DEFENCE

~~SECRET~~

ARMY

D.C.M.,
New Army Building,
Cartier Square,

OTTAWA, CANADA, September 16, 1943,
National Research Council Building.

Attention: Major D.J. Dewar.

I am enclosing for your information Copies
No. 5 to 10 of the following report for transmission to Lt. Col. Sawyer:-
Physiological Note No. 29. Notes on Meeting of the

physiological mechanisms committee.

Physiological Note No. 30. Notes of a meeting to discuss anti-
gas ointments held in New York, August 27th, 1943.

Physiological Note No. 31. Notes on a meeting of the sub-
committee on the formulation of BAL ointments held in
New York, September 2, 1943.

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.



D. Bato

(Mrs.) D. Bato,
for Superintendent of Research

Encl.
CL

*ack
forwarded
54357-30*

17/9/43

*28/9/43
28-5-4
23*

CHEMICAL WARFARE LABORATORIES

54364-29-5-4

QUOTE #.CWL-2-13-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY

SECRET

D.O.V.,
New Army Building,
Cartier Square,

OTTAWA, CANADA, September 16, 1943.
National Research Council Building.

Attention: Major D.J. Dewar.

I am enclosing for your information Copies

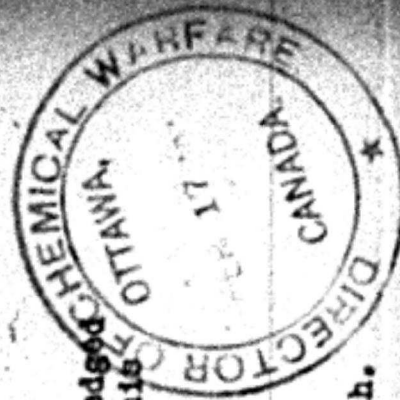
No. 5 to 10 of the following report for transmission to Lt. Col. Sawyer:-
Physiological Section Report No. 24. Influence of sunlight
on 8-461 ointment in a 1/10th mm. film on human skin.

Physiological Note No. 26. Notes on visits to the University
of Chicago, the U.S. Naval Research Laboratories, Edgewood
Arsenal and Cornell Medical College.

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.



*ack
forwarded
54364-30-1-1
17/9/43*

DJB

Incl.
CL

*54364-29-5-4
2435-29-5-4
3*

CHEMICAL WARFARE LABORATORIES

OTCWA No. 54354-29-5-4

54354-29-5-4



DEPARTMENT OF NATIONAL DEFENCE
ARMY

D.O. No. 28,
New Army Building,
Cartier Square,
Ottawa, Ont.

OTTAWA, CANADA, September 16th, 1943,
National Research Council Building.

I am enclosing for your information Copies
No. 1 & 2 of the following report :

Physiological Section Report No. 28, Influence of sunlight
on S-461 ointment in a 1/10th mm. film on human skin.

Physiological Note No. 28, Notes on visits to the University of
Chicago, the U.S. Naval Research Laboratories, Edgewood
Arsenal and Cornell Medical College.

ack
DJA
6/17/43

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

PA 54354-29-5-4
Encl.
CL

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.



CHEMICAL WARFARE LABORATORIES

NOTE NO. CWL-8-13-2-5

54264-24-5-4

DEPARTMENT OF NATIONAL DEFENCE
SECRET
ARMY

Director of Chemical Warfare,
New Army Bldg.,
Cartier Square.

OTTAWA, CANADA, September 16, 1943,
National Research Council Building.
Attention: Major D.J. Dever.

I am enclosing for your information Copies
No. 29 & 30 of the following report for transmission to
Australia:-

Physiological Section Report No. 24. Influence of sunlight
on S-461 ointment in a 1/10th mm. film on human skin.

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.



3
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17/43
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24354-29-3-4
Encl.
OL

RECEIVED

M. 001-9-15-2-5

S#354-29-5-4

DEPARTMENT OF NATIONAL DEFENCE

ARMY

Chemical Warfare Laboratories

SECRET

August 20th, 1943.

National Research Council Building,
Ottawa, Ont.D.C.W. & S.,
New Army Building,
Cartier Square,
Ottawa, Ont.

I am enclosing for your information copies 1 and 2
of the following report:

Physiological Section Report No. 22 - Effectiveness of Impregnate
E in Triacetin - Magnesium Stearate Base Against Mustard.

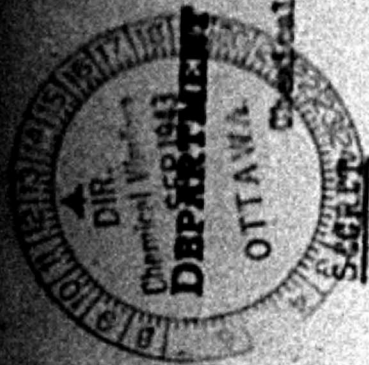
May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

Encl.
CL

M. D. Morton

for (Mrs.) D. Bate,
for Superintendent of Research

CANADA



IN REPLY PLEASE QUOTE

File 2-15-2-5

5920-29-5-4

DEPARTMENT OF NATIONAL DEFENCE

ARMY

Chemical Warfare Laboratories

SECRET

September 9th, 1943.
National Research Council Building,
Ottawa, Ont.

D.C.W. & S.,
New Army Building,
Cartier Square,
Ottawa, Ont.

I am enclosing for your information copies 1 and 3
of the following report:

Physiological Test Report No. 109. Patch Tests on Butyl Rubber
(Goodrich)



My receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

354-29-5-4
Encl.
CL
23

CHEMICAL WARFARE LABORATORY

QUICK NO. CW-5-15-2-3

54354-29-5-4



DEPARTMENT OF NATIONAL DEFENCE
SECRET
ARMY

Director of Chemical Warfare,
New Army Building,
Cartier Square,
Ottawa, Ont.

OTTAWA, CANADA, September 1, 1943,
National Research Council Building.

Attention: Major D.J. Dewar.

I am enclosing for your information Copies
No. 5 to 10 of the following report for transmission to Lt.
Col. Sawyer:-
Physiological Section Report No. 23. A study of vesicant
decontaminants.



My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

Encl.
CL

*ack
DJD*

*forwarded
54354-30-1-1*

37/423

*PA
54354-29-5-4
EX.*

CHEMICAL WARFARE LABORATORY

QUEBEC NO. CWL-5-15-2-3

54354-24-5-4



DEPARTMENT OF NATIONAL DEFENCE
SECRET
ARMY

Director of Chemical Warfare,
New Army Building,
Cartier Square,
Ottawa, Ont.

OTTAWA, CANADA, September 1, 1943,
National Research Council Building.

Attention: Major D.J. Dewar.

I am enclosing for your information Copies
No. 5 to 10 of the following report for transmission to Lt.
Col. Sawyer:-
Physiological Section Report No. 23. A study of vesicant
decontaminants.



My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

Encl.
CL

*ack
DJB
forwarded
54354-30-1-1
37/423
Jus 354 Ex.
24-5-4*

34354-29-5-4

docs no. 091-9-15-2-5



CANADA

DEPARTMENT OF NATIONAL DEFENCE
SECRET

ARMY

Director of Chemical Warfare, Attention: Major Devar.
New Army Building,
Cartier Square,
Ottawa, Ont.

OTTAWA, CANADA. September 2, 1943.
National Research Council Building.

I am enclosing for your information Copies
No. 29 & 30 of the following report for transmission to
Australia:-

Physiological Section Report No. 23. A study of vesicant
decontaminants.



My receipt of this report be acknowledged
please by signing and returning the lower portion of the
letter.

M. Bate

Incl. (Mrs.) D. Bate.
CL 34354-29-5-4 for Superintendent of Research.

ack
DFB
forwarded
34354-30-2
3 9/10

CERTIFICATE OF RECEIPT

SECRET No. 94-2-15-2-5

5434-29-5-4

DEPARTMENT OF NATIONAL DEFENCE

ARMY

SECRET

Ottawa, Ont.
D. G. & S.,
National Research Council Bldg.,
Cartier Square,
Ottawa, Ont.

Ottawa, Canada, August 27th, 1943.
National Research Council Building.

I am enclosing for your information Copies
No. 1 & 2 of the following report :

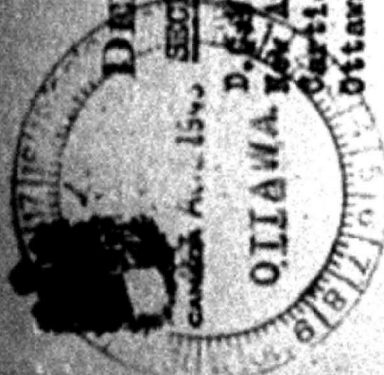
Physiological Test Report No. 103. Patch Tests on Viceroy
Face Piece Samples.

My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

M. D. Morton

for (Mrs.) D. Bate,
for Superintendent of Research.

PA
94354 29-5-4
Encl.
E.F. CL



147144

SECRET

55/4160/9 (SD 11)

CANADIAN MILITARY HEADQUARTERS

54354-29-5-4

23 Jul 1943

The Secretary
Department of National Defence
Ottawa Canada

Attn DCW & S



Comments on CW Lab Physiological
Section Report No. 20

1 With reference to the CW Laboratories, Ottawa, Physiological Section Report No. 20 "Studies on the immunological behaviour of HI. The Preparation of H-Serum Protein Complexes", the following comments are submitted by Porton:

2 "Dr. Butler's finding that the H-Protein complexes contain added sulphur but not added chlorine is not evidence that the initial products are not 2H-protein compounds of the type envisaged in PR 2483; Dr. Butler's preparations were dialysed before analysis and it is almost certain that the second H molecule in the 2H-protein compound would be removed by such treatment (of PR 2483, p 7).

3 "This comment is, of course, in no sense a criticism of Dr. Butler's work, since the immunological behaviour of H is most probably dependent on the more firmly held H of the H-protein compound (of PR 2483, p 7)."

4 May these comments be passed to CW Laboratories, please.

1JR

*copy forward to
case
6/43
JRS*

(Sgd.) W. L. Archer
for (W R Sawyer) Lt col
SD 11

for Senior Officer
Canadian Military Headquarters

CW 1413

*54354-29-5-4
E.P.*

SECRET
UNPAGE

SECRET

137544

55/4210/1 (SD 11)

54354-29-524

CANADIAN MILITARY HEADQUARTERS

The Secretary
Department of National Defence
Ottawa, Canada

Attn DCW & S

CW Labs Physiological Section No 13



- 1 Reference your letter HQS 4354-36-1-229 CW & S) dated 19 Apr 43.
- 2 Herewith copy Y 5413 from CDR 1, Ministry of Supply, containing comments on a/m letter.
- 3 For your information please.

*copy forwarded to
CWL
25/6/43*

VIA/dh

SIGNED

(W.L. Archer) Capt.
for (W.R. Sawyer) Lt col
for Senior Officer, Can. Mil. Headquarters

CW 1193

SD 11.

S. 1354-29-5-4.

13.

Y 8413
54354-29-5-8

SD 11
Canadian Military Headquarters

Reference your 55/4210/1 (SD 11) dated 28th April, 1943, enclosing the reply by the Chemical Warfare Laboratories, Ottawa, to comments on Report No 13.

The following information is forwarded as requested in paragraph 1A of the CW Laboratories comments:-

- (1) Employing a team of six or more men. 0.5 gm of the experimental substance is rubbed into the inner aspect of the right thigh, and this is repeated daily for one week, the same area being treated at each operation. The left thigh may be similarly treated with either a known antigas ointment as a control, or any other ointment for comparative purposes.
- (2) If (1) produces no skin reaction the following procedure is follows: A small area over the angle of the jaw of the shaven face is thoroughly inuncted with a small portion of the experimental substance; this is repeated daily for one week, the same area being treated each day. The same area being treated each day. The other side of the jaw may again be used for comparative purposes.
- (3) If (2) produces no skin reaction, a small area of the right side of the scrotum is inuncted as above; this operation is repeated daily for one week, the same area being treated each day.
- (4) In the continued absence of skin reaction to date, the right side of the shaven face is inuncted and the team of men placed in a hot room ($T^{\circ} 104^{\circ}$ to 120° F); their service respirators are adjusted and sweating is induced by exercising. When perspiring freely, the team is kept in the room for 20 minutes. This procedure is repeated, in the absence of any intervening skin reaction, four times during the day at 2-hourly intervals

AG Ointments No 3 and 5 have successfully passed this final test.

CDR 1 Savoy Hill House
Tem Bar 4411 Ext 40
19.5.43
RTG/MGS

(Sgd) "R T GORTON"

Superintendent of Research,
C.W. Laboratories.

S. 4354-29-5-4 (DCW & S).

Att'n: Dr. J. G. Malloch.

28 Jun 43

CWL Physiological Section Report No. 13.



Reference your letter of approximately
18 Apr 43, forwarding reply to Porton's
regarding CW Laboratories Physiological Section
Report No. 13 (Y 997).

1. Forwarded herewith please find copy of
Y 5413, forwarding information requested in
paragraph 1A of your reply.

DJA
(D. J. Deaver) Major,
for Director of Chemical Warfare & Smoke.

DJD/AF.

CW 1193

Pia
1 S. 4354-29-5-4
2.13



DEPARTMENT OF NATIONAL DEFENCE

ARMY
Chemical Warfare Laboratories

Ottawa, 10 June 1943

54354-29-5-4

SECRET

D.C.M. & S.
New Post Office Bldg..
OTTAWA.



Attention: Major D. J. Devar

act
DJD

I am enclosing for your information copies 7-12 of the following report CANADA

Physiological Section Report No. 21 - Effect of Reducing the Inunction Time of S-461 during H Decontamination (for transmission to England)

May receipt of this report be acknowledged please by signing and returning the lower portion of this letter.

D. Bate

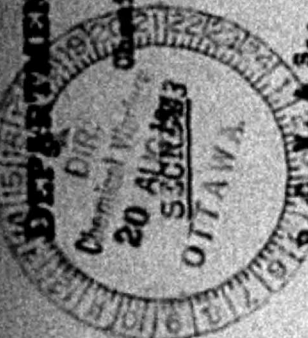
(Mrs.) D. Bate,
for Superintendent of Research.

19.
54354-29-5-4
F.K.



CANADA

54354-29-5-4



DEPARTMENT OF NATIONAL DEFENSE

ARMY

Chemical Warfare Laboratories

August 20 1943

National Research Council Building,
Ottawa, Ont.



D. B. N. S.
New Army Building,
Cartier Square,
Ottawa, Ont.

I am enclosing for your information copies
of the following report:

Physiological Test Report No. 107. Identification of C.W.
agent in samples of earth and sand from Atlantic
Command Area.

advised 10/20/43

My receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

H. D. Motion

for (Mrs.) D. Bate,
for Superintendent of Research.

Encl.
BT

54354-29-8-4

MINISTER OF NATIONAL DEFENCE

Index

Alfred
Cal Variano Laboratories

Laboratories
August 20th, 1942.
National Research Council Building,
Ottawa, Ont.

Chemical Warfare,

Director of Chemicals,
New Army Building,
Cartier Square,
Ottawa, Ont.

Attention: Major D.V. Dewar.

Cartier & Co.,
Ottawa, Ont.

Attention: Mr. [redacted]

I am enclosing for your information copies 5 to 10
of the following report: for transmission to Lt. Col. Sawyer:-
[redacted] of impregnate

of the following reporters: **Effectiveness of Impregitate**
Mustard No. 22.

Physiological Section Report No. 22. Effectiveness of
Z in triacetin - magnesium stearate base against mustard.

may receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

h. P. M. 10/10

for (Mrs.) D. Bate,
for Superintendent of Research.

Encl.



05-15-15
40

54358-30
238/43.
Encl.

00023

IN REPLY PLEASE QUOTE

NO. OW-15-2-5

DEPARTMENT OF NATIONAL DEFENCE
ARMY
Chemical Warfare Laboratories

Ottawa, 10 June

1943

54254-29-5-24

SECRET

D.C.W. & S.
New Post Office Bldg.,
OTTAWA.

Attention: Major D. J. Dewar

I am enclosing for your information copies 1 & 2
of the following report:

Physiological Section Report No. 21 - Effect of Reducing
the Incubation Time of S-461 during H Decontamination.

My receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.



*ack 6/14/43
" JGA*

67-13-25

5434-29-5-4

DEPARTMENT OF NATIONAL DEFENCE

SECRET

ARMY

Chemical Warfare Laboratories

Ottawa, 4 June

1943

D.C.V. & S.
New Post Office Bldg..
OTTAWA.

Attention: Major D. J. Devar

I am enclosing for your information copies 7 - 12
of the following report:

Physiological Section Report No. 19 - Further Observations on
S-461 Green and its Modifications

(for transmission to Col. Sawyer)

May receipt of this report be acknowledged
Please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.



CANADA

5434-29-5-4
5434-30-1-1
5434-30-1-1

forwarded

5434-29-5-4
EF

IN REPLY PLEASE QUOTE

No. OML-8-15-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY
CHEMICAL WARFARE LABORATORIES

2434-29-5-4



June 3rd, 1943.
National Research Council Building,
Ottawa.

D.C.W. & S.,
New Post Office Building,
Ottawa, Ontario.



I am enclosing for your information copies 1 and 2
of the following report:-

Physiological Section Report No. 20 - Studies on the
immunological behaviour of H.

1. The Preparation of H-Serum Protein Complexes.

May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

Encl.
CL

D. Bate
(Mrs.) D. Bate,
for Superintendent of Research.

6/6/43
3
DJB

RE REPLY PLEASE QUOTE
CML-8-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY
CHEMICAL WARFARE LABORATORIES

54354-24-5-4

June 3rd, 1943,
National Research Council Building,
Ottawa.

Director of Chemical Warfare,
New Post Office Building,
Ottawa, Ontario.

Attention: Major D. J. Dewar.

I am enclosing for your information copies 7 to 12
of the following report for transmission to Lt.-Col. Sawyer:-

Physiological Section Report No. 20 - Studies on the
immunological behaviour of H.

1. The Preparation of H-Serum Protein Complexes.

May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.



D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

ack 4/43

forwarded 10-11-43

Encl. 54354-24-5-4
CL S.H.

RECEIVED
MAY 14 1943

54354-29-5-4



DEPARTMENT OF NATIONAL DEFENCE

ARMY

Chemical Warfare Laboratories

May 11th, 1943.

National Research Council Building,
Ottawa.

Director of Chemical Warfare,
New Post Office Building,
Ottawa, Ontario.

I am enclosing for your information copies 1 and 2
of the following report:

Physiological Section Report No. 18 - Man Tests of Canadian Army
Respirator Containers Against Cyanogen Chloride at High
Humidity.

My receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

P.A.
54354-29-5-4
S.H.



W. Bate

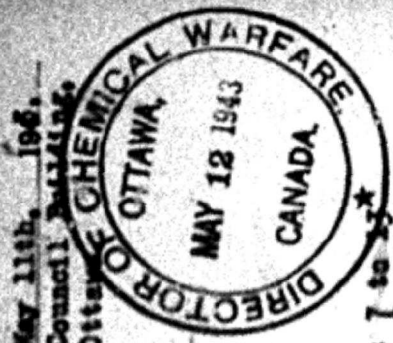
(Mrs.) D. Bate,
for Superintendent of Research

CL



5454-29-5-4
5454-29-5-4

DEPARTMENT OF NATIONAL DEFENCE
ARMY
Chemical Warfare Laboratories



May 11th, 1943.
National Research Council Building,
Ottawa

SECRET

Director of Chemical Warfare,
New Post Office Building,
Ottawa, Ontario.

Attention: Major D.J. Dewar.

I am enclosing for your information copies 7 to 13
of the following report for transmission to Lt. Col. Sawyer.

Physiological Section Report No. 13 - Man Tests of Canadian Army
Respirator Containers Against Cyanogen Chloride at High
Humidity.

My receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

*at 143 to 143
12/14/43
found 30-1-1
5454-29-5-4
S.H.*

P.A.
5454-29-5-4
S.H.



NOTE NO. OTL-15-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY
CHEMICAL WARFARE LABORATORIES

5424-29-5-2

OTTAWA, CANADA. 26 Apr., 1943.

SECRET

E.C.W. & S.,
New Post Office Bldg.,
OTTAWA.

Attention: Major D. J. Devar

I am enclosing for your information copies
of the following report

Physiological Section Note #28 - Note on an Unusual Case
of Remote Response to Mustard Contamination (Copies 1 and 2)

Physiological Section Note #23- (Copies 7-13) (for transmission to Col. Sawyer)

May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

COPY

B O D E N
B O D E N

124365

5/4216/1 (SD 11)

S 4354-27-5-4

CANADIAN MILITARY HEADQUARTERS

20 Apr 45

The Secretary,
Department of National Defence,
Ottawa, Canada.

Attn D.S.W.

Personal Decontaminants for "S"

1 The following comments on Chemical Warfare Laboratories, Ottawa, Physiological Section Report No 14 "Personal Decontaminants for S" have been received from the Ministry of Supply:

"This report has been read with interest, and the results appear to be well in conformity with our experience of similar materials.

Sodium hydrogen sulphate was one of the few substances examined at Porton that were effective impregnants for porous clothing against S vapour, though naturally it was too acid to be of practical value for this purpose, and this would also render it unsuitable for ointment work.

It is presumed that the CW Laboratories at Ottawa know that as impregnants various metallic chlorides (zinc, aluminium and chromium) were very effective though for various reasons they could not be further considered. They would not be suitable for use in ointments, but should be effective skin decontaminants in solution. CrCl_2 has obvious physiological dangers, and ZnCl_2 was irritant when used as an impregnant for underclothing."

2. For your information, please.

*copy furnished to
C. F. J. J.*



(Sgd.) W.L. Archer, Captain,
for (W.R. Sawyer) Lt. Col.
S.D. 11
for Senior Officer
Canadian Military Headquarters

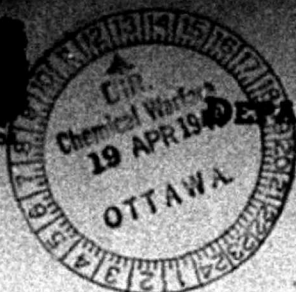
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54354-27-6-4

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DEPARTMENT OF NATIONAL DEFENCE
ARMY

CHEMICAL WARFARE LABORATORIES

Ottawa, 19 Apr.

1943

54354-20-5-4

D.C.W. & S.,
New Post Office Bldg.,
OTTAWA.

Attention: Major D. J. Dewar

1. I have read the comments by Dr. Ida Mann and Professor Cordier on Capt. Fowler's notes on the meeting of the Committee on the Treatment of Gas Casualties, Sept. 17, 1942, and on his visit to the University of Pennsylvania the previous day. Certain of the questions raised can be discussed without reference to the U.S. investigation and the rest have been forwarded to the interested persons.

2. The attached memorandum should be sent to England for the information of Dr. Mann and Professor Cordier, with our thanks for their comments.

3. We should be very glad to have copies of the information kindly offered to us by Prof. Cordier from La Notice Clinique et therapeutique de l'intoxication par les gaz (Ministere de la Guerre, sous Secretariat du Service de Sante 1918). Lt. Col. Sawyer might be asked to facilitate the copying if necessary.

*Comments forwarded
to Canada
with
54354-20-1-1
20 4/43
JGS*



J. G. Malloch
J. G. Malloch.

Document divulgué en vertu de la loi sur l'accès à l'information

Reference: Professor D. Cordier's comments on Captain Fowler's notes on the Meeting of the Committee on the Treatment of Gas Casualties, 17 Sept. 1942.

Page 1

I believe that the apparent contradiction between paragraphs 1 and 2 arises from the mode of administration - intravenously in the first case and subcutaneously in the second. It might be noted that the 30 minute hydrolysate produced no cholinergic effects or convulsions. It is likely that the hydrochloride administered subcutaneously was not effective in an unchanged form.

Page 5

We are very glad to have Professor Cordier's views on the effects of exercise and venesection in phosgene poisoning. I am fully in agreement that the results of animal experiments showing that early exercise has no detrimental effect should be applied to men with caution. It is probable however that it will be the tactical situation rather than the knowledge of the physiological factors that will dictate the amount of exercise. Professor Cordier's comments are being transmitted to Dr. Winternitz for the information of his committee.

J. G. Walloch.

Reference: Dr. Ida Mann's comments on Capt. Fowler's notes on the meeting of the Committee on the Treatment of Gas Casualties, 17th Sept., 1942.

P.4 para.4.

The Canadian group have consistently agreed with the view expressed by Dr. Mann that to be effective D.T.H. must be issued to the individual man. We also believe that to be practical the issue should be in the form of an ointment. Plans to implement this are going forward. For a time the official War Office view (as expressed in reports reaching Canada and the U.S.) was against the individual issue. The Americans were greatly influenced by this British attitude. Since September, however, the American view has been gradually swinging in favour of an individual issue. At the present time there is some controversy as to the form of the issue, the alternatives being a 5% ointment, or a 5% solution. Those favouring the latter claim that it is more effective than the ointment. The difficulties of finding a suitable package for liquid and of self-administration in the field are very great and personally I do not believe that they can be overcome.

Para.7.

The statement that "eight weeks following a mustard burn of the eye vascularization of the cornea begins" should, of course, have read "eight days" I have no way of knowing now whether the error occurred in the preparation of the notes or whether the mistake was made in the statement at the meeting.

J. G. Malloch.

Reference: Professor Cordier's comments on Capt. Fowler's
notes on his visit to the University of Pennsylvania.

Page 1

The questions raised by Professor Cordier are being transmitted
to Dr. Winterhitz for answers from the Philadelphia group.

J. C. Walloch.

COPY

In Reply Please Refer to
No. 3 10-1-1A

DEPARTMENT OF NATIONAL DEFENCE
ARMY
Chemical Warfare Laboratories

34154-29-5-9

Ottawa, 16th April, 1943
National Research Building.

D.C.M. & S.,
New Post Office Bldg.,
Ottawa, Ont.

Attention: Major D.J. Dewar

With reference to your memorandum of April 15th, H.Q.S. 4354-23-7 (DCWAS) and H.Q.S. 4354-29-5-4 (DCWAS) with regard to Porton's comments on Physiological Section Report No. 13, the following observations may be made in reply.

2. With regard to the observations in para (2) of Porton's comments, if Porton will send us complete details regarding their method of testing irritancy we will be glad to consider its adoption. It might be pointed out however that most of our tests have been comparative tests and that these tests have led us to conclusions with respect to the relative irritancy of ointments A/G No. 2 and No. 5 and S-461 cream which have been fully in accord with Porton's conclusions. It would seem that our methods have not led us badly astray.

*Forwarded to
S-461-30-1-1
17463
JH*

3. In para (3) of Porton's comments, the statement is made that the lewisite decontamination properties of S-461 cream are relatively poor. We have done very little work here with lewisite have accepted the British assessment that S-461 is as good a decontaminant for lewisite as A/G No. 5 (W.12105). As far as I know, from personal contact with the staff at the Naval Research Laboratories in Washington, very little work has been done on the decontamination of lewisite by S-461. They have, however, attempted to improve the prophylactic properties of S-461 cream towards lewisite by the inclusion of zinc oxide in the formula.

J. G. Malloch.

JCM/ee



Supt. of Research
C.W. Labs.

S.4354-23-2 (DOW & S)
S.4354-23-3-4 (DOW & S)

P
14 Apr 43

Irritancy of S-461 Ointment
Physiological Section Report No.13

1. Forwarded herewith please find copy of Porton's comments on Physiological Section Report No. 13, on S-461 Ointment.
2. Particular attention is drawn to para (2) of the comments, which notes that the Canadian irritancy tests did not appear to be as stringent as the British.
3. Would you please forward any comments on this statement and also the full report on S-461 ointment which was requested in our HQS.4354-3-3 of the 10th of March as soon as possible.

DJA
(D.J. Dewar) Major,
for DOW & S.

DJD:FL



P.a.
54354-29.5-4.
L.B.

SD 11

Canadian Military HQ

Y 007

24324-24-24

NRC Physiological Section Report No 13
"Irritancy of S 461 cream"

This report has been read at Porton and the following comments are submitted:

We have previously commented that S.461 cream is irritant as compared with Ointment A/G No 5, this is confirmed by the Canadian Report. There seems to be little doubt, also that S.461 cream is less irritant than Ointment No 2, and is therefore preferable to the Americal ointment M.4, which is approximately as irritant as Ointment No 2.

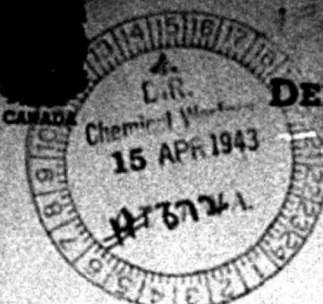
The tests for irritancy used in the US and Canada do not, however, appear to be so stringent as ours, and there will be no agreed basis for assessing the irritancy of an ointment, and hence its suitability for service use as a prophylactic treatment, until the test conditions have been made uniform.

It is agreed that S.461 cream is a very stable ointment, and a good decontaminant from H; its lewisite decontaminating properties are, however, relatively poor. Investigation of the latter is being carried out at the Naval Research Labs in Washington.

The Canadian Report does not give any results for irritancy of No 5 on repeated application, corresponding to those in Table II

Sgd "M M Stiff"

CDR 1 (Savoy Hill House)
Temple Bar 4411 Ext 39
MMS/DG
13.3.43



DEPARTMENT OF NATIONAL DEFENCE

**ARMY
CHEMICAL WARFARE LABORATORIES**

Ottawa, April 13th. 1943
National Research Building.

D.C.W. & S.,
New Post Office Bldg.,
Ottawa, Ont.

Attention: Major D. J. Dewar

The following is the information requested by CDR 3
through C.M.H.Q. 55/4000/2 (SD 11) dated 10th March, 1943.

(a) The report states that the exposure to the mustard vapour was made immediately after the application of the powder. In actual practice this could be interpreted as a delay of not more than 5 minutes between the application of the powder and the commencement of the vapour exposure. The same interval would apply to the experiments with the anti-gas ointment.

(b) Method of application of the powder - The powder was applied liberally by a pad of absorbent cotton dabbed on to the skin. The ointment was applied in excess, rubbed in for two minutes and the excess wiped off. This is the standard procedure in tests for prophylactic efficiency.

(c) The powder was not wiped off and the surplus ointment was wiped off. However, it should be pointed out that it is not possible to have a great excess of the powder adhere to the skin, but as it is possible apply a considerable excess of ointment. Furthermore, owing to the adherent nature of any ointment, a considerable proportion of the ointment will always remain on the skin even after wiping. Whereas a higher proportion of the powder would be removed by the same procedure.

(d) The sites exposed to the two treatments were not reversed on alternate men as this might give rise to a systematic error. The relative position of the treatments however was randomized in accordance with the best modern statistical theory.

JGM/es

J. G. Malloch.
J. G. Malloch.

DEPARTMENT OF NATIONAL DEFENCE
ARMY

Ottawa, 15 Apr., 1943

SECRET

D.C.W. & S.
National Research Bldg.,
OTTAWA.

Attention: Major D. J. Dewar

I am enclosing for your information copies 1 and 2
of the following report:

Physiological Test Report 89 - Patch Tests on Rubber from Air Force
Goggle-frames.
Physiological Test Report 90 - Patch Tests on Rubber Samples cut
from Gas Masks.

My receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

ack
16th/43



CANADA

TO: MR. J. H. GORDON

NO. 65-13-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

54320-29-54

Ottawa, 6 Apr. 1943



SECRET

D.C.W.,
New Post Office Bldg.,
OTTAWA.

Attention: Major D. J. Devar

I am enclosing for your information copies 1 & 2
of the following reports

Physiological Test Report No. 84 - Penetration Times for H

Vapour through Cloth Treated with Impregnate Powders.

Physiological Test Report No. 87 - Patch Tests on Rubber Samples.

May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.



D. Bate

(Mrs.) D. Bate,
Superintendent of Research.

IN REPLY PLEASE QUOTE

in CML-15-2-3

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

54354-29-6-4

Ottawa, 9 Apr.,

1943



D.C.W.,
New Post Office Bldg.,
OTTAWA.

Attention: Major D. J. Devar

SECRET

I am enclosing for your information copies 1 & 2
of the following report

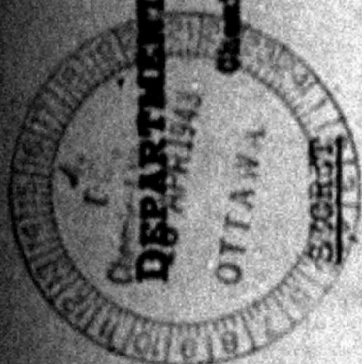
Physiological Test Report No. 88 - Patch Tests on Rubber Samples

May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

100-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY
Chemical Warfare Laboratories

Ottawa, 15 Apr., 1943

54267-24-5-2

D.O.W. & S.
New Post Office Bldg.,
OTTAWA

Attention: Major D. J. Deemer

I am enclosing for your information copies 1 & 2
of the following reports

Physiological Section Report No. 17 - Comparison of the Efficiency
and Irritancy of Ointment A/G No. 2 and Modifications II and IV
of S-461 Cream
Physiological Section Report No. 16 - Comparison of S-461 creams of
varying chlorine content.
May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

ack
16/4/43

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

IN REPLY PLEASE QUOTE

NO. 98-0-15-2-3

34357-29-5-4

DEPARTMENT OF NATIONAL DEFENCE

ARMY

Chemical Warfare Laboratories

March 27th, 196.

National Research Council Building,
Ottawa, Ont.

SECRET

Director of Chemical Warfare,
New Post Office Building,
Ottawa, Ontario.

I am enclosing for your information copies 1 and 2
of the following report:

Physiological Note No. 27 - Notes on the Meeting of the Physiological
Mechanisms Committee (PM-C) held in New York 25 February, 1943.

May receipt of this report be acknowledged
please by signing and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research

MB:CL

IN REPLY PLEASE QUOTE
M. 95-2-15-2-5

54134-27-5-2
DEPARTMENT OF NATIONAL DEFENCE

ARMY
Chemical Warfare Laboratories

March 27th, 1943.
National Research Council Building,
Ottawa, Ont.

SECRET

Director of Chemical Warfare,
New Post Office Building,
Ottawa, Ontario.

Attention: Major D.J. Devar.

I am enclosing for your information copies 6 to 12
of the following report: for transmission to Colonel Sawyer.

Physiological Note No. 27 - Notes on the Meeting of the Physiological
Mechanisms Committee (34-C) held in New York 25 February, 1943.



of this report be acknowledged
and returning the lower portion
of this letter.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

DB:CL

SECRET

DEPARTMENT OF NATIONAL DEFENCE - OTTAWA, CANADA

CROSS REFERENCE

SUBJECT C.W. REPORTS

C.W.L. PHYSIOLOGICAL SECTION

REPORTS.

DEAD

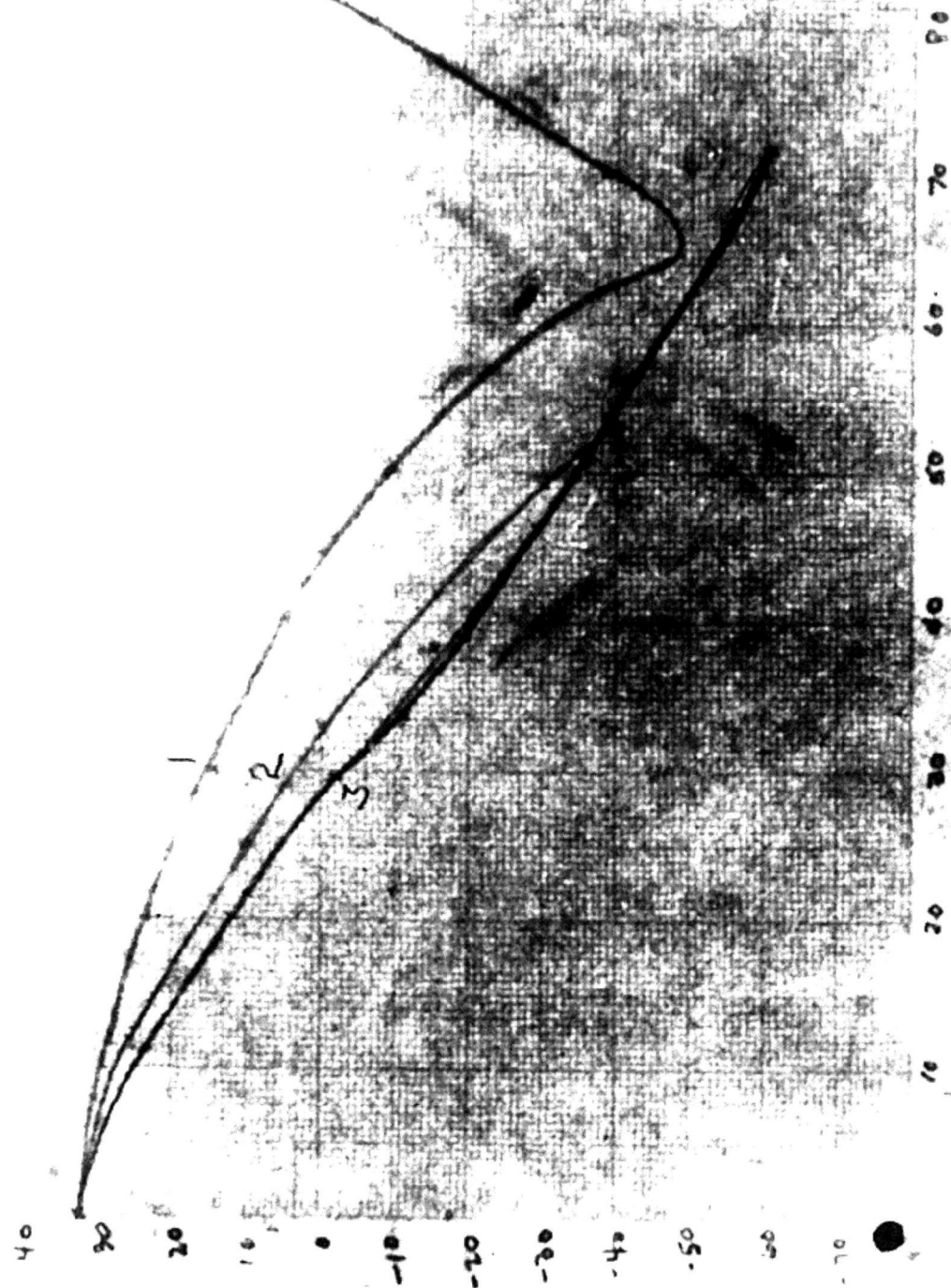
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H.Q.

4354-29-5-4 VOL.2

CENTRAL REGISTRY	DATE	P.A. OR S.P.	INITIALS	REFERRED TO	FOR REMARKS	INITIALS	DATE
(If purpose for which referred cannot be expressed on one line, add details to file and enter here "With Minute")							
JAN 25 1944		P.A.	h	D.C.W.	JAN 25 1944		
FEB 12 1944		P.A.	h	SCRS			
MAR 13 1944		P.A.	h	D.C.W.	For Regulation C.R. MAR 13 1944		
APR 12 1944		P.A.	h	D.C.W.	For Regulation C.R. APR 11 1944		
MAY 2 1945		P.A.	h	D.C.W.	For Regulation C.R. APR 18 1944		
APR 19 1945		P.A.	h	D.C.W.	For Regulation C.R. APR 19 1945		
JUN 13 1945		P.A.	h	D.C.W.	For Regulation C.R. JUN 13 1945		
MAY 10 1946		P.A.	h	D.C.W.	For Regulation C.R. MAY 9 1946		
FEB 17 1947		P.A.	h	D.A.	FOR REGISTRATION - FEB 17 1947		
MAR 15 1947		P.A.	h	D.A.	FOR REGISTRATION C.R. FEB 18 1947		
		P.A.	h	D.A.	FOR REGISTRATION C.R. MAR 13 1947		

Freezing Point Curves

1 - blend 7% by wt
 2 - pure 7% by wt
 3 - alcohol 7% by wt





In reply quote No. _____

DEPARTMENT OF NATIONAL DEFENCE
ARMY
INTER-OFFICE CORRESPONDENCE

C O P Y

24 Apr 46

TO: Lt.-Col. E.A. Flood.

Attached is -

- (1) Freezing point graph for glycerine and water, prestone and water, and alcohol and water.
- (2) Viscosity graph for solutions of glycerine and water, and alcohol and water.
- (3) A list of organic chemicals with a liquid range between -20 and 200°C. approximately.

This list was compiled in a search for a chemical that would have a lower vapour pressure than water at 100°C., in addition to having a lower freezing point.

(Sgd.) M. G. Benson

MGB/mlr

(M. G. Benson) Capt.

20 Apr 46.

- H. It is realized that the recommendation of para 2 is by no means a solution of the problem presented. We will endeavour to find a better fluid, but it is thought as a temporary measure the glycerine solution will permit fire-extinguishing experiments to be conducted at seasons of the year and in localities where water is apt to freeze and cannot be retained in metal containers without danger of breaking equipment. One further word of caution is necessary concerning the use of aqueous solutions containing antifreeze or freezing point lowering solutes. If such a solution is submitted to frequent freezing and thawing, there is a tendency for the components to separate partially and damage to containers might result from leaving a solution of glycerine and water in a tank under conditions where frequent freezing and thawing occur without agitation.
- I. It seems worth while to point out that the fumes produced when water is sprayed onto the burning cordite are toxic. However, it is not considered that the hazard from this cause is comparable to the fire hazard within a tank in which any appreciable quantity of cordite has been ignited.
4. Attached are some relevant notes and test reports.



EAF:LM:5543
Encls.

(E. A. Flood) Lt.-Col.,
Superintendent of Research.

29 Apr 46.

(a) It must be comparable in fire-extinguishing efficiency to pure water.

(b) It must have fluidity characteristics suitable for use in relatively low pressure spray equipment.

(c) It must be comparatively non-toxic in quite high concentrations, both in the presence and absence of cordite fires.

(d) It must not itself form an explosive or additional fire hazard.

(e) It must not freeze at temperatures appreciably below zero Fahrenheit.

(f) It must be non-corrosive, stable, of reasonable cost and reasonable availability.

(g) The physical and general properties must be such that no very marked handling difficulties arise from its use both in experimental stages and in the complete installation.

E. It is considered that all the above characteristics cannot be met without considerable experimental research. However, a temporary solution to the problem which will permit winter fire-extinguishing trials without danger of breaking equipment is afforded by aqueous solutions of glycerine.

F. A 30 to 40% by volume solution of glycerine must be cooled to nearly zero Fahrenheit before initial crystallization of ice begins. The quantity of ice crystals formed under these conditions is small and it is exceedingly improbable that a tank filled with this solution would burst when cooled to temperatures ten to twenty degrees below zero Fahrenheit. Upon warming up to plus 10 Fahrenheit, the solution would be ready for use and would not plug jets, etc. A spray of a glycerine solution of this composition has been used in extinguishing cordite fires and found comparable in efficiency in fire-extinguishing characteristics in typical spray jets and it was further found that the fumes produced when this solution was used are if anything less toxic than those produced by water alone. It is therefore recommended that for experimental work a solution of glycerine in water, about 35% by volume, be used. It must be emphasized, however, that this solution will deposit ice crystals when cooled to zero degrees Fahrenheit. Consequently the solution should not be allowed to stand in the leads from the tanks at low temperatures and must be allowed to warm up to temperatures above 10 degrees Fahrenheit before use.

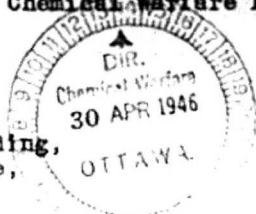
G. It has been noted that a considerable surface of burning cordite (slow burning type such as used in 75 mm. shell cases) can be extinguished quite readily by a tumbler of water thrown gently onto the centre of the burning cordite. This suggests that it might be worth while providing small half pint or pint containers with quickly detachable tops within easy reach of the loader or within easy reach from the centre of the gun turret, the containers filled with water or suitable aqueous solution.



Department of National Defence

Chemical Warfare Laboratories

Ottawa, Canada, 29 Apr 46.



D.C.W. & S.,
New Army Building,
Cartier Square,
O t t a w a.

Attention: Major Klaehn

Project 08A

1. With reference to the request by D.V.S.A. to provide a fluid for extinguishing cordite fires which would not freeze under Canadian winter conditions, the following recommendation and miscellaneous notes are submitted for D.V.S.A.
2. It is recommended that for experimental purposes under cold weather conditions a solution of glycerine consisting of one vol. glycerine and two vols. water be used until a better solution can be found.
3. The following miscellaneous notes may be of interest and are accordingly submitted along with the recommendation of para 2
- A. It is the opinion of the Superintendent of Research, C.W. Laboratories, that the development of some automatic device for extinguishing fires in tanks or providing a "flame quenching screen" which would enable tank crews to escape from burning tanks is a worth-while project and it seems very probable that a simple practical solution can be found which will save the lives of tank crews in battle.
- B. Judging from very limited data, namely, the excellent film on this subject shown by D.V.S.A. and rather makeshift small scale experiments in this Establishment, it would appear that the device for extinguishing cordite fires in tanks should be based upon both automatic release and hand release of the fire-extinguishing mechanism after fires have been started within the tank rather than attempting to keep combustible material in a fire-extinguishing atmosphere or fluid. This remark applies only to existing tank designs and is not intended to suggest that ammunition compartments, etc. should not have greater armour protection.
- C. It is considered ~~that~~ the device as at present employed by D.V.S.A. is very near a practical solution to this problem. It is considered that the five gallon tank of extinguishing fluid should be divided into compartments with independent leads to the spray nozzles and that the lines leading from the tank should be free from liquid until the mechanism is actually operated, the actuating mechanism opening valves at the tank compartments with pressure already supplied or alternatively applying the pressure at the time of actuation. The former is considered generally preferable at this stage of development because of its greater speed of action.
- D. The specific problem on which the C.W.L. was asked to advise was the provision of an antifreeze fluid for use in fire-extinguishing sprays which would not freeze at temperatures as low as practicable. As far as the fire-extinguishing fluid is concerned, there are few substances that have the desirable properties of water for this purpose. Whether the fire-extinguishing fluid is to be a water solution or other liquid, it must have the following characteristics:

SCOTT No. CWL 15-2-5

CONFIDENTIAL

4354-29-5-4

DEPARTMENT OF NATIONAL DEFENCE
ARMY
CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA. April 30, 1946.

D.C.W. & S.,
New Army Building,
Ottawa.

Attention: Major R.A. Klahn

We are enclosing for your information Copies
No. 1 and 2 of the following:
5, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19
Research Section Note No. 45 Signals, flare and coloured
smoke, self-projected - C.W.L. design.
Copies 1 and 2 of
Physiological Test Report No. 207 The toxicity of the
fumes produced in the extinguishing of burning
cordite.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

B. Lang
(Miss) B. Lang.

Encl. (16)
BL

for Superintendent of Research.

Superintendent of Research,
Chemical Warfare Laboratories,
National Research Council Building,
Ottawa, Ontario.



File: CWL 15-2-5
Date: April 30, 1946.

Receipt sent to me

I hereby acknowledge receipt of Copies
No. 1 and 2 of the following: 5, 7, 8, 9, 10, 13, 14, 15, 16, 17, 18, 19
Research Section Note No. 45. Signals, flare and coloured smoke,
self-projected - C.W.L. design.

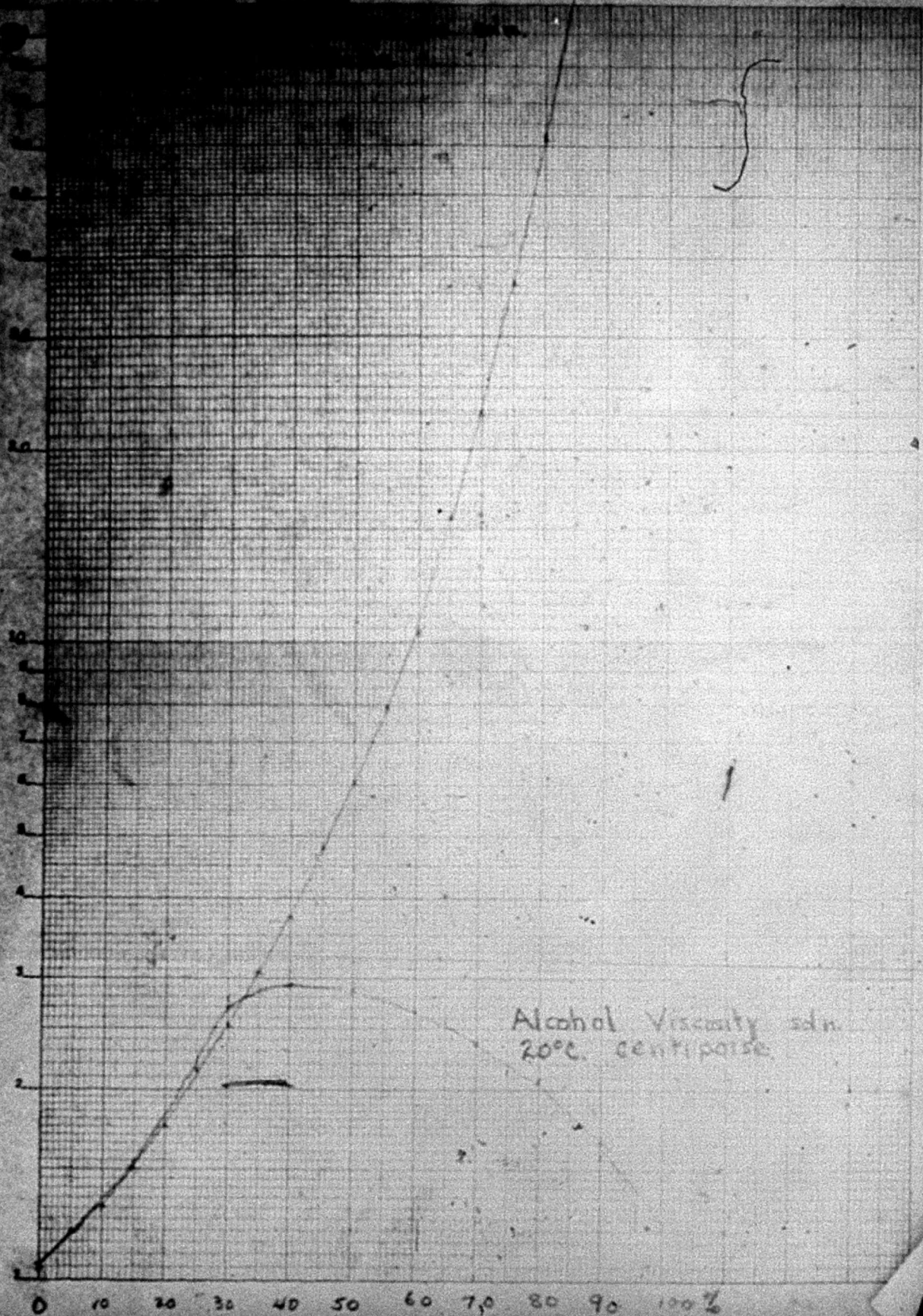
Copies 1 and 2. Physiological test rept. no. 207. The toxicity of the fumes pro-
duced in the extinguishing of burning cordite.



Date _____

Signed _____

Form CWL F.2



C O P Y

	<u>M.P.</u>	<u>B.P.</u>
Acetate, benzyl	-51.5	213.5
Cyano acetic (ethyl ester)	-22.5	202.6
Adipic acid (dibutyl ester)	-37.5	183
Amyl ether	-69	190
Aniline, o ethyl	-43	215
Aniline, m ethyl	-64	214
Arsine, dichloromethyl	-59	133
Benzaldehyde	-26	179
Benzene, amyl	-78	202
Benzene, bromo	-30	155
Benzene, chloro	-45	132
Benzene, 1,3,dimethoxy	-52	217
Benzene, ethyl	-93.9	136
Benzene, iodo	-31	188
Benzoic, butyl ester	-22.4	250
Benzoic, ethyl ester	-34.6	216
Benzoic, propyl ester	-51	231
Benzoic, methyl	- 8	275
Benzyl chloride	-43	179
Butanol, acetate	<-100	162
Butanone, oxime	-29	152
3 Butenoic acid	-39	163
Butyric anhydride	-75	198
Capric acid, ethyl ester	-20	224
Caprinitrile	-17.9	243.7
Caproic acid, γ hydroxy, lactone	<-18	220
Caproic acid, δ methyl	<-25	211
Caproic, anhydride	-40	241
Carbanel, m-tolyl	<-20	217
Chavicol	<-25	237
Carvacrylamine	-16	241
Clupanodonic acid	<-78	236
m-Cresol, thio	<-20	195
Cumene, α nitro	-35	d. 224
Dibenzylamine	-26	300
Di isoamylamine	-44	190
Diphenylamine, n methyl	- 8	294
Di-m-tolylamine	<-12	320
Dodecane	-12	214
Enanthic acid	-10	223
Ethanol, 2-benzyloxy	<-75	256
Ethyl fluoride	-37	198
Ethyl sulphate	-25	208
Geraniol	-15	229
Glutaric acid, diethyl ester	-24	237
Glutaronitrile	-29	287
Glycerol triacetate	-78	259

	<u>M.P.</u>	<u>B.P.</u>
Glycerol tributerate	-75	315
Glycerol, trioleate	-17	240
Glycol	-17	197
Glycol diacetate	-31	186
Heptane	-26	195
Heptane, 1-iodo	-48	203
n-Heptyl alcohol	-35	176
2-Hexadecyne	-25	280
Hydratropic acid	< -20	265
Indene	- 2	182
Isocaproic acid	-35	207
Isodurene	-24	197
Isoeugenol	-10	267
Isosafrole	< -18	242
Isothiocyanic acid, phenyl ester	-21	218
Ketone, phenyl o-tolyl	< -18	316
Lauric acid, ethyl ester	-10	269
Linoleic acid	-11	230
Maleic acid, dimethyl ester	-19	205
Malonic acid, diethyl ester	-54	235
Mesidine	< -15	233
Methane, phenyl p-tolyl	-30	285
Napthalene, dihydroxy	< -18	264
Napthalene, 1-ethyl	< -14	258
Napthalene, 2-ethyl	-19	251
Napthalene, 2-fluoro	-13	212
Napthalene, 1-methyl	-22	240
Napthalene, 1,2,3,4, tetrahydro	-30	207
Nicotine	< -80	247
1-Nonanol	- 5	213
2-Nonanol	-35	193
3-Nonanol	-22	194
Octane, 1 bromo	-55	203
Octane, 1 iodo	-45	255
Octanol	-16	135
Octanol, acetate	-38	210
2-Octanone	-20	173
Pelargonic acid, ethyl ester	-36	227
Pentane, 1,5, dibromo-	-35	224
o-Phenetidine	< -21	229
Phenol, m-methoxy	< -17.5	244
o-Phenylenediamine, N,N- dimethyl	< -20	268
Phenyl sulphide	< -40	296
Phlorol	< -18	207
2-Propane-1-phenyl	-15	216
Quinolene	-19	237
Quinolene, 7 methyl	< -20	252
Styrene, α chloro	-23	199

	<u>M.P.</u>	<u>B.P.</u>
Succinic acid, ethyl methyl ester	<-20	208 -
1-Tetradecene	-12	246
α-Tolualdehyde	<-10	194
α-Toluic acid, methyl ester	<-50	213
m-Toluidine	-31	203
o-Toluonitrile	-13	204
Tridecane	<- 6.2	234
o-Xylene 4-bromo	- 3	214
p-Xylene, 2-ethyl	<-20	185
2,3, Xylidine	<-15	223

D. C. W.			
C. W. A.			
G. V. P.			
G. W. C.			
A1		B1	
A2		B2	
A3		B3	
A4		C.	
A5		C2	
		C3	

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DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4154-29-5-4 (DCHEB)
(H.315)

TO: D.C.H.S.

OTTAWA: 9 Apr 46

Physiological Test Report No.206

Forwarded herewith is copy No.2 of
Physiological Test Report No.206 Toxicity Tests on
Triglycoidichloride.

2. For your information and retention
please.

encl.

/ac

(R. A. Kleschn) Major,
for Director of Chemical Warfare & Smoke.



CONFIDENTIAL

MEMORANDUM

DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4354-29-5-4 (DCW&S)
(N.315)

OTTAWA: 9 Apr 46



TO: D.C.M.S.

Physiological Test Report No.206

Forwarded herewith is copy No.2 of
Physiological Test Report No.206 Toxicity Tests on
Triglycoldichloride.

2. For your information and retention
please.

Library

In: C. Karch/caps
for Director of Chemical Warfare & Smoke.

encl.

/kc

PA

(3)



DEPARTMENT OF NATIONAL DEFENCE
ARMY
INTER-OFFICE CORRESPONDENCE

Ottawa, 5 Apr 1946.

Memorandum to Lt.-Col. E. A. Flood.

Cordite Fires in A.F.V.'s

1. The apparatus previously used to extinguish cordite fires was set up 1 April, 1946, and preliminary experiments initiated at once to get a background for the problem of fighting cordite fires in A.F.V.'s and to test the efficiency of glycerine solutions in extinguishing cordite fires.
2. A series of tests were made on 2 April to determine what conditions were satisfactory.
3. A series of tests were made on 3 April using the following conditions:
 - (a) 5 lbs. of cordite were burned.
 - (b) 5 litres of extinguishing liquid were used.
 - (c) 150 lbs. pressure on the nozzle.
 - (d) Nozzle provided by proving ground used.
 - (e) Fires ignited by hand.
 - (f) Quick release valve turned on by hand when the flames were 2 to 3 ft. out of container.
 - (g) Quenching time measured after valve is turned on with stop watch.
 - (h) Cordite remaining after each run was collected separately, dried in circulating oven 3 hrs. and weighed.
4. A series of 9 runs were made and the results are shown in tabular form.

Run number	Quenching liquid	Quenching time	Wt. of cordite remaining
1	water	not recorded	8 oz.
2	"	12 sec.	7 oz.
3	"	10 sec.	5 oz.
4	"	12 "	9 oz.
5	"	10 "	4 oz.
6	30% glycerine sol'n	10 "	7 oz.
7	30% " "	18 "	10 oz.
8	50% " "	15 "	12 oz.
9	50% " "	12 "	8 oz.



DEPARTMENT OF NATIONAL DEFENCE
ARMY
INTER-OFFICE CORRESPONDENCE

- 2 -

Memorandum to Lt.-Col. E. A. Flood

5 Apr 1946.

5. The following observations were noted:

- (a) The cordite seemed to burn more vigorously during runs 6,7,8,9.
- (b) Just as the flame was extinguished there was a dense yellow smoke produced 6,7,8,9.
- (c) There was a sharp odour to the fumes produced 6,7,8,9 not noted before.

6. The results are not conclusive because the time of turning on the quenching spray is not uniform. To correct this it is suggested that a solenoid valve be used in place of the quick release hand-operated valve. This valve could be activated by the flame burning through a thread, thus closing a circuit breaker.

7. Although comparable results may be obtained in this way, a larger quantity of cordite might better be used to simulate field conditions. This will necessitate building a safe container for the cordite and having protection for the experimenters.

M.G.B.

MGB:LM

(M. G. Benson) Captain.

54104-29-5-4

QUOTE NO. CWL-35-2-5

219222

DEPARTMENT OF NATIONAL DEFENCE
ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA, 28 May 45.
National Research Council Bldg.

D.O.V. & S.,
New Army Bldg.,
Ottawa, Ont.

We are enclosing for your information Copies
No. 1 & 2 of the following:

Development Section Note No. 54. Visit of Major Glen
Deacon Bros. Ltd. Belleville, Ont. on 17 May 45.
Copies 1,2,5,6,7,8,9,10,13,14,15,16,17,18,19 Lane

Physiological Section Report No. 50. The immunological
behaviour of some fractions from castor beans

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letter.

BL/MS
Encl.

B. Lange
(Miss) B. Lange
for Superintendent of Research.

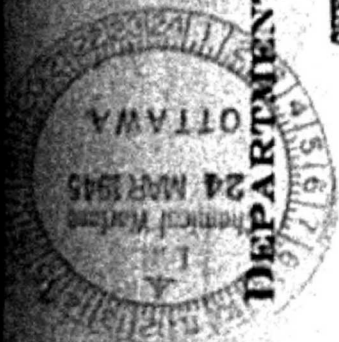
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5430-29-5-7

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QUOTE NO. CWL-15-2-5

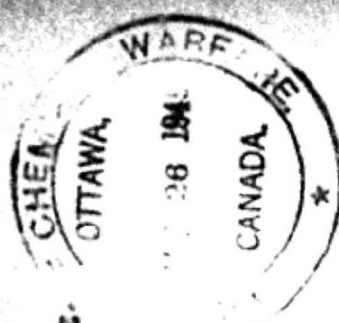


DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA, 23 Mar 45.
National Research Council Bldg.



D.C.V. & S.,
New Army Bldg.,
Ottawa, Ont.

Attn: Major D.J. Dewar

We are enclosing for your information Copies
No. of the following:
Copies 1,2,5,6,7,8,9,10,13,14.

Handwritten notes:
28 Mar 45
29 Mar 45

Physiological Section Report No. 49. Properties and Performance
of S-330 Antigen Ointment Containing Dimethyl Phthalate.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

EL/MB
Encl.

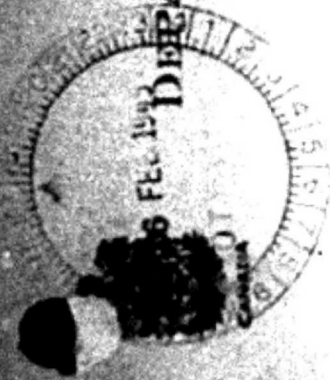
Handwritten: B. hang
(Miss) B. Lang.

for Superintendent of Research.

Handwritten: PA-4354 24-5-4
27-3-45
206

Handwritten: 1282

1491.4354-29-574



REPORT NO. CML-15-2-5

CONFIDENTIAL

DEPARTMENT OF NATIONAL DEFENCE
ARMY
CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA, 16 Feb 45.
National Research Council Bldg.



D.C.W. & S.,
New Army Bldg.,
Ottawa, Ont.

We are enclosing for your information Copies
of the following:

No.

Copies 1, 2, 5, 6, 7, 8, 9, 10, 13, 14.

Physiological Section Report No. 48. Studies of H-Sensitivity
in the Guinea Pig. - II.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

B. Lang.

(Miss) B. Lang,
for Superintendent of Research.

BL/MB
Encl.

149

54354-29-5-4

NOTE NO. CML-15-2-5

SECRET

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA, 3 Jan 45.
National Research Council Bldg.

D.C.V. & S.,
New Army Bldg.
Ottawa, Ont.

Attn: Major D.J. Dewar

We are enclosing for your information Copies
of the following:
No. Copies 1,2,5,6,7,8,9,10,13,14.

Physiological Note No. 39. Notes on a Meeting of Section 9:5.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

B. Lang
(Miss) B. Lang,
for Superintendent of Research,

B/LTB

1065

DIRECTOR
JAN 4 1945



CANADA

*ack'd
JF
5/1/45*

QUOTE NO. CML-15-2-5

CONFIDENTIAL

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA

24 Nov. 44

D.C.W. & S.,
New Army Building,
Cartier Square,
Ottawa.



Attention: Major D.J. Dewar.

We are enclosing for your information copies

of the following:

Copies 1, 2, 5, 6, 7, 8, 9, 10, 13 and 14.

Physiol. Section Rept. No. 46. The reaction of H with serum proteins in the presence of phosphate.

Physiol. Section Rept. No. 47. The effect of pyruvic acid on the separation of the slough in experimentally produced mustard lesions in man.

May receipt of the enclosure be acknowledged, please, by signing and returning the lower portion of this letter.

H/EAR
Encl.

B. Lang
(Miss) B. Lang,
for Superintendent of Research,

54204-21-5-44

SECRET

QUOTE NO. CML-15-2-3



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA. 1 NOV



D.C.W. & S.,
New Army Bldg.,
Cartier Square,
Ottawa.

Attn: Major D.J. Dewar

We are enclosing for your information Copies

No. of the following:

Copies 1, 2, 5, 6, 7-10, 13, 14

Physiological Section Rept. No. 44. Irritancy of A/G Ointments
C.W.L. 1 and 8-330 under Field Conditions.

Physiological Section Rept. No. 45. Chronic Acid Lesions of
the Nasal Septum occurring in Personnel engaged in Charcoal
Impregnation.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

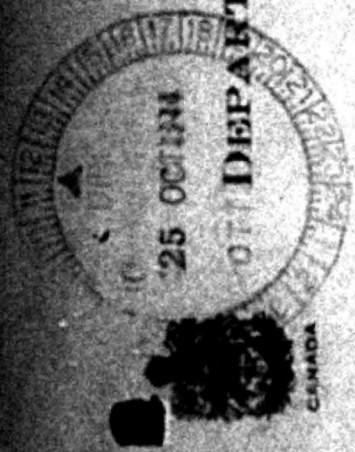
Encl. 925

for Superintendent of Research

B. Lang

ack
11/4
3

6720-29-5-4



CONFIDENTIAL

SECRET No. CML-13-2-5

DEPARTMENT OF NATIONAL DEFENCE
ARMY
CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA. 24 Oct. 44



D.O.W. & S.,
New Army Building,
Cartier Square,
Ottawa.

Attention: Major D.J. Dewar.

We are enclosing for your information Copies

No. 1 - 2, 5, of the following:
6, 7, 8, 9, 10, 13 and 14.

Physiological Section Report No. 42. Use of C.W.L. 1 ointment
as an emergency impregnant against H vapour.

Physiological Section Report No. 43. S-461 as a water
purifier.

*ack - sent
JGD 25/10/44*

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

BL/HAT
Encl.

B. Lang
(Miss) B. Lang,
for Superintendent of Research.

162

5435-29-5-4

SCOTE No. CML-15-2-5

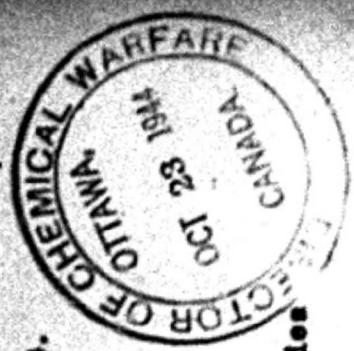
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DEPARTMENT OF NATIONAL DEFENCE
ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA, 20 Oct 44.

D.C.V. & S.,
New Army Bldg.,
Cartier Square,
O t t a w a.



Attn: Major D.J. Dewar

We are enclosing for your information Copies
No. 1 & 3 of the following:

Physiological Test Rept. No. 183. Patch Tests on L3/CN
Butyl (Mask) and GRI M-35-43.

" " " " 184. Toxicity of Methiodides.

Figure 1. Pressure Stability Tube. For insertion in Research
Section Note No. 37. (10 Oct 44)

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

HL/MS
Encl. 12

*for (Miss) B. Lane,
for Superintendent of Research.*

130

*ack 21/10/44
JFD*



54357-29-5-4

NOTE NO. CML-15-2-5

RECEIVED



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA. 20 Oct 44



D.C.W. & S..
New Army Bldg..
Cartier Square,
O t t a w a.

Attn: Major D.J. Dever

We are enclosing for your information Copies
No. 1 & 3 of the following:

Physiological Test Rept. No. 150. Irritancy of Dyed Fabrics.

" " " 151. Patch Tests of Synthetic Rubber GR-S.

" " " 152. Patch Tests on Reclaim Rubber (Serial No. 1266).

cut 21/44
DJD

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

Encl. 12

M. H. Rice
(Miss) B. Lang,
for Superintendent of Research.

64304-29-5-4

CONFIDENTIALQUOTE NO. CM-15-2-5

DEPARTMENT OF NATIONAL DEFENCE
ARMY
CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA. 13 Oct 44.

B.O.V. & S.,
New Army Bldg.

Attention: Major D.J. Devar

We are enclosing for your information Copies
of the following:

Copies 1-2, 5-6, 7-10, 13-14.

Physiological Note No. 37. Report of Meeting held at Naval
Research Station, Anacostia, to discuss Carbon-
Impregnated Protective Clothing, September 27, 1944.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

RL/MB

Encl. 10

for Superintendent of Research,

B. Lang

(Miss) B. Lang

138

5420V-29-5-4

SECRET NO. CML-15-2-5

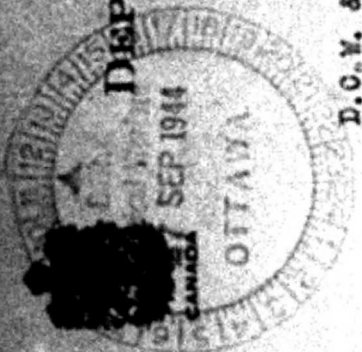
SECRET

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA. 26 Sep 44



D.C.W. & S.,
New Army Bldg.,
Cartier Square,
Ottawa.

We are enclosing for your information Copies
No. 1 & 3 of ~~the~~ of the following:

- Physiological Test Report No. 174. Toxicity Test of Methiodide.
(20 Sep 44).
- Physiological Test Report No. 175. Toxicity Tests of Methiodides.
(20 Sep 44).

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

HL/MB
Encl.

B. Lang
(Miss) B. Lang,
for Superintendent of Research.

137

133-y
227/44

SECRET No. 956-15-2-5

CONFIDENTIAL

DEPARTMENT OF NATIONAL DEFENCE
ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA. 28 July, 1944.
National Research Council Bldg.

D.C.M. & S.
New Army Bldg.

Attention: Major D.J. Dewar

We are enclosing for your information Copies
of the following:

Copies 1-2, 5-10, 13-14

Physiological Note No. 36. Notes on the response of
hairless mutants of the mouse...

Physiological Section Rept. No. 40. Influence of sunlight
on ointment S-330....

Copies 1 & 3 of Physiological Test Report No. 166. Patch test
on rot-proofed bleached and unbleached duck.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

MR

Encl.

Markie
for (Miss) M. D. Morton,
for Superintendent of Research.

Pl. 8435-2-29-5-4
12-8-44 AC



*Act'd
31 July 1944
W.H. Dept.*

Hqs. #354-29-5-4

SECRET

CM-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA.

12 July 44

D.C.M. & S. Building
Cartier Square,
Ottawa.

We are enclosing for your information Copies
No. 1-3 of the following:

Physiological Test Report No. 161.

Toxicity Test of Methiodides.



May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

B. Lang

(Miss) B. Lang
for Superintendent of Research.

Encl.

*Ack'd
12/24/44*

126

145000-5-4

CONFIDENTIAL

NOTE NO. CM-8-15-2-5

DEPARTMENT OF NATIONAL DEFENCE
ARMY
CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA.

9 June 44

D.C.M. & S.,
New Army Building,
Cartier Square,
Ottawa.

Attn: Major D.J. Devar

We are enclosing for your information Copies
of the following:

Physiological Test Report No. 150

Toxicity of HCB-HV Compounds.

No. 1 & 3

May receipt of the enclosure be acknowledged.
Please, by signing and returning the lower portion of this
letter.

W.D. Moton

for (Miss) B. Lang of Research,
for Superintendent

1/1
Encl.



*Ack
12 JUN 1944*

143, 1304. 27. 1-4-40

NOTE: NCWL-S-15-2-5

SECRET

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA.

31 May 44

D.O.W & S.,

New Army Building,
Cartier Square
Ottawa

Attention: Major D.J. Devar.

We are enclosing for your information Copies
No. 1 & 3 of the following:

PHYSIOLOGICAL Test Report No. 145

Toxicity Test of Methiodide

Physiological Test Report No. 146

Patch Test of Unvulcanized Butyl Rubber

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

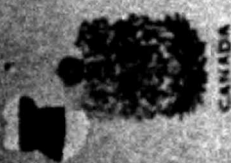
/V
Encl.

B. Lang

(Miss) B. Lang
for Superintendent of Research.

117

Ack.
2 1/2 in. R. Capt.
29 cms



6435V-29-5-4

CONFIDENTIAL

NOTE: GML-8-15-2-5

DEPARTMENT OF NATIONAL DEFENCE
ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, CANADA

29 May 44

D.C.W & S.,
New Army Building,
Cartier Square,
Ottawa.

Attention: Major D.J. Dever.



We are enclosing for your information Copies
of the following: and for transmission.

- No.
1, 2, 5, 6, 7, 8, 9, 10, 13, 14.

Physiological Section Report No. 10

Studies of H-Sensitivity in the Guinea Pig.

May receipt of the enclosure be acknowledged,
please, by signing and returning the lower portion of this
letter.

B. Lang

(Miss) B. Lang of Research,
for Superintendent of Research.

/v
Encl.



*only - sent
JLB
30/5/44*

3/5

116

CANADA

RESTRICTED

Chemical Warfare Laboratories, Ottawa

Hqs. 4354-29-5-4

Physiological Test Report No. 142

Copy No. 1 of 8

May 12th, 1944



PATCH TESTS ON UNVULCANIZED BUTYL RUBBER

CONTAINING E.P.A. NO. 3

A sample of unvulcanized Butyl Rubber said to contain E.P.A. No. 3 was submitted for test by Mr. T.R. Griffith. It was pressed into sheets in the rubber mill and these were cut into discs of 1-1/8" diameter and tested in pairs in the usual manner.

The reactions were so definite that no table is appended. Of 26 men each carrying 2 patches for 72 hours, 14 men or 54% gave reactions of mild but definite erythema or higher. Four of these showed strong reddening with minute, closely-placed vesicles over the area. All other men had traces of erythema on at least one side, and all traces but two persisted till the next day.

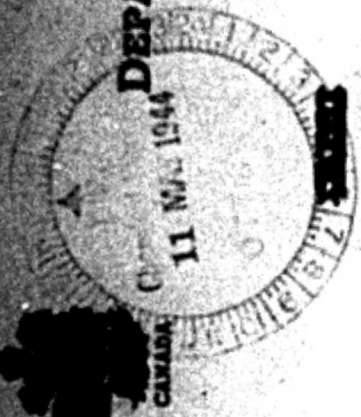
This material is definitely irritant, and in comparison with other rubber samples may be classed as strongly irritant.

Tests by: W.B. Stallworthy
Report by: W.B. Stallworthy

Distribution:

Copies 1 & 3 D.C.W. & S.
2 C.W. Library
4 Suffield
5 Mr. Griffith
6 Major Gay
7 J.G.M.
8 Spare

493-4554-29-2-4
IN REPLY PLEASE QUOTE
M. C. L. 8-13-25



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

RESTRICTED

OTTAWA, Ontario, 11 May 1944



D.C.V. & S.,
New Army Building,
Cartier Square,
Ottawa, Ont.

Attention: Major D.J. Dewar.

I am enclosing for your information Copies
No. of the following report(s):

- 1, 2, 5, 6, 7, 8, 9, 10, 13, 14.

Physiological Section Report No. 38.

The Reaction of H with Glycine Ethyl Ester.

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

Ack.
12 5/14
W.H. Cap

17
ENCLS.

B. Lang.

(Mrs.) D. Bate,
for Superintendent of Research.

(228)

114

CANADA

RECEIVED

Chemical Warfare Laboratories, Ottawa

Physiological Test Report No. 140

Copy No. 1 of 7

May 2nd, 1944

TOXICITY OF TRIETHYL PHOSPHATE

The specimen consisted of about 100 c.c. of oily liquid with a sweetish odour, contained in a bottle labelled triethyl phosphate. This liquid was said to be closely related to one under consideration by the U.S. Army for defrosting aeroplane propellers. It was submitted for test by Dr. Stedman.

DETAILS

Dry air was drawn at the rate of 1 L. per minute through a bubbler containing approximately 10 c.c. of the liquid. The partially saturated air was mixed with an equal volume of room air and passed through a chamber containing 10 mice. The concentration of triethyl phosphate was 0.56 mg./L. The exposure was continued for 2 hours, after which the mice were returned to their cage. Subsequently, a control group of mice were placed in the chamber and 2 L. per minute of room air was drawn through for two hours.

RESULTS

No definite effect could be observed in either group of mice. The animals were observed for 5 days.

CONCLUSION

Triethyl phosphate is apparently non-toxic to mice at a C.T. (mg. per cubic metre x time in mins.) of 139,000.

Tests by: A.E. Armstrong
K. Waldock

Report by: A.E. Armstrong

Distribution:

Copies 1 & 3 D.C.W. & S.
2 C.V. Library
4 Suffield
5 Dr. Stedman
6 J.G.M.
7 Spare



158

Dept. of Research,
C. W. Labs.



S. 4354-29-5-3 (DOWMS)
S. 4354-29-5-2 (DOWMS)
S. 4354-29-5-1 (DOWMS)

2 May 44

C.W.L. Reports

1. At a recent meeting of officers of D.S.D. (W) this Directorate was advised that copies of C.W.L. Physiological Section Reports would no longer be required by D.S.D. (W).

2. This Directorate was also advised that copies of Proofing Section Reports and Research Section Reports would normally not be required. Copies of these reports will be forwarded on file for D.S.D. (W)'s information and if a copy of a particular report is desired for retention by D.S.D. (W) you will be advised through this Directorate.

DWD/JH

DJD
(D J Dewar) Major
for D.C.M. & S.

W.C. to D.S.D. (W)

54384-29-5-4
IN REPLY PLEASE QUOTE
No. CML-3-15-2-5



DEPARTMENT OF NATIONAL DEFENCE
ARMY
CHEMICAL WARFARE LABORATORIES
OTTAWA, Ontario, 4 Apr. 1944

SECRET

D.C.V. & S.,
New Army Building,
Cartier Sq.,
Ottawa, Ont.

Attn: Major D.J. Dewar.



I am enclosing for your information Copies
No. of the following report(s):
1, 2, 5, 6, 7, 8, 9, 10, 13, 14, 29.

Physiological Section Report No. 36.

Further physiological studies on ointment S-330

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

B. Lang

/v
Encls.
(Mrs.) D. Bate,
for Superintendent of Research.



74
S-1134-29-5-4

MEMORANDUM

SECRET

TO: D.S.D. (W)

H.Q.S. 4354-295-4 (DCW & S)

DATE 5 APR 44

Canadian Chemical Warfare Reports

Forwarded herewith for your retention
~~distribution~~ please find Copy No. 29
of the following report(s)

C.W. Laboratories Physiological Section Report
No. 36.

[Signature]
for D.C.W. & S.



PA
S. V. S. 44-5-16
2057

MEMORANDUM

SECRET

TO: DSD (W)

H.Q.S. 84354-29-5-1 (DCW & S)
H.Q.S. 84354-29-5-1 (DCW & S)
DATE: 3 Mar 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your
distribution, please find copy No. 29
of the following report(s)

CW Laboratories Development Section Report
No. 95.

CW Laboratories Physiological Section Report
No. 35.

for D.C.W. & S.



Pa 84354-29-5-1
7-3-44 SKC

MEMORANDUM

SECRET

TO: DSD (W)

DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4354-29-5-4 (DCW & S)

DATE:

Canadian Chemical Warfare Reports

Forwarded herewith, for your information and retention, please find copy No. 29 of the following report(s)

C.W. Laboratories Physiological Section Report
No. 34.



for D.C.W. & S.

PA 84354-29-5-4
7-2-44 AC 472

BY REPLY PLEASED OFFICE

CMC-S-15-2-5

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 3 Feb 1944

S.4354-29-5-4

SECRET

D.C.V.A.S.,
New Army Building,
Carr-Saunders Square,
Ottawa, Ontario.

I am enclosing for your information Copies
of the following report(s):

1. 2, 5, 6, 7, 8, 9, 10, 13, 14, 29.
- Physiological Section Report No. 34.

A Study of Blood Chemistry of Goats,
following skin exposure to Mustard Gas.

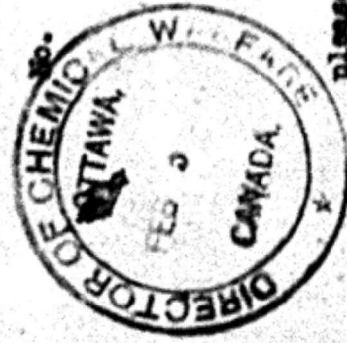
My receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

m/v
MELS.

(Mrs.) D. Bate,
for Superintendent of Research.

D. Bate - P.A.S.4354-29-5-4
8-2-44

ac



MEMORANDUM

SECRET

TO: DSD (W)

H.Q.S. 4354-29-5-4 (DCW & S)
H.Q.S. 4354-29-6
DATE: 28 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your
distribution, please find copy No. 29
of the following report(s)

Canadian C.W. Extra Mural Reports C.P. 48 and 49.
Physiological Section Report No. 33.

[Signature]
for D.C.W. & S.



PA-84354-29-5-4

29-1-44 ac

26

MEMORANDUM

SECRET

TO: DSD (W)

H.Q.S. 4354-29-5-4 (DCW & S)

H.Q.S. 4354-29-6

DATE: 28 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your
distribution, please find copy No. 29
of the following report(s):

Canadian C.W. Extra Mural Reports C.P. 48 and 49
Physiological Section Report No. 33.

DA
for D.C.W. & S.



p.a. 84354-29-6

29-1-44

ac

000303

59204-27-6-4
in 1947
CML-8-13-8-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 26 Jan. 1944

SECRET

D.C.M. & S.,
New Army Building,
Cartier Square,
Ottawa.

Attention: Major D.J. Dewar.

I am enclosing for your information Copy No. of the following report(s):

Copies: 1,2,5,6,7,8,9,10,13,14 and 29.
Physiological Section Report No. 33.

Copies: 1,2,5,6,7,8,9,10.
Development Section Note No. 38.

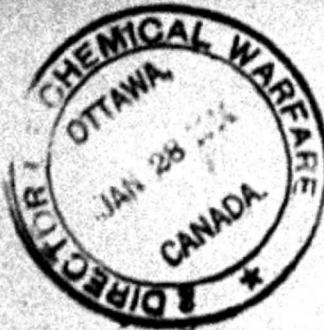
My receipt of this report be acknowledged please by signing and returning the lower portion of this letter.

D. Bate - P.A. 24354-29-5-4

(Mrs.) D. Bate,
for Superintendent of Research.

29-1-44

MB/EAT



54304-29-5-4
M. C.M.S. 15-2-4



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 22 Jan 1944



D.C.W. & S.,
New Army Building,
Cartier Square,
Ottawa, Ontario.

Attn: Major D.J. Dwyer.

I am enclosing for your information Copies
of the following report(s):

Copies No. 1, 2, 5, 6, 7, 8, 9, 10,

Development Section Note No. 16A.

Report on visit of Major Glen Gay to U.S.C.W.S. Establish-
ments at Boston, Gravelly Point, Wash., and Edgewood Arsenal ...

Monthly Progress Notes December 1943.

Copies No. 1, 2, 5, 6, 7, 8, 9, 10, 29.

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

D. Bate

DB/V
EWOLS.

(Mrs.) D. Bate,
for Superintendent of Research.

24-1-44

24-1-44

MEMORANDUM

SECRET

TO: DSD (W)

H.Q.S. 4354-29-5-4 (DCW & S)

DATE: 20 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your
distribution, please find copy No. 29
of the following report(s)

C.W.L. Physiological Section Report No. 32.
Canadian Extra Mural Reports C.P. 47, 50 and 51.



[Signature]
for D.C.W. & S.

PA 4354-29-5-4

21-1-44

[Signature]

54304-29-5-4

RECEIVED

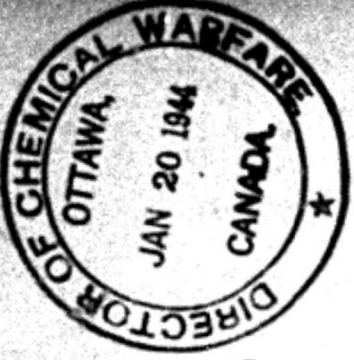
NOV 15 1944

DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 19 Jan 1944



D.C.W.L.S.,
New Army Building,
Cartier Square,
Ottawa, Ontario.

I am enclosing for your information Copies
of the following report(s):

Copies No. 1, 2, 5, 6, 7, 8, 9, 10, 13, 14, 29.

Physiological Section Report No. 32. - "Decontaminating
Capacity of the Magnesium Stearate-Triacetin Ointment Base."

C.P. 47.- Acute Toxicity Studies of 2-Methyl-5-Dimethylamino-
phenyl M-Methylcarbamate.

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

MB/V
ENCLOS.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

54304-29-5-4

21-1-44

Ac

*ack
sent
BPA
25/1/44*

MEMORANDUM

SECRET

TO: EBD (W)

DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4354-29-5-4 (DOW & S)

DATE: 18 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your information and retention, please find copy No. 29 of the following report(s)

C.W. Laboratories Report C.P. 45 and C.P. 46.



W L L Lapt
for D.C.W. & S.

PA 4354-29-5-4

20-1-44

Accp

HQS 4354-29-5-4

BY REPLY PLEASE QUOTE

No. CML-8-15-2-5



DEPARTMENT OF NATIONAL DEFENCE

ARMY

CHEMICAL WARFARE LABORATORIES

OTTAWA, Ontario, 17 Jan 1944

SECRET

D.C.M. & S.,
New Army Building,
Cartier Square,
Ottawa, Ont.

Attn: Major Devar.

I am enclosing for your information Copies
No. of the following report(s):

C.P. 45 and C.P. 46.

Copies No.- 1, 2, 5, 6, 7, 8, 9, 10, 13, 14, 29.

Report on Blood Studies in Phosgenized Animals - ...
Report on Blood Studies in Phosgenized Animals - ...

May receipt of this report be acknowledged
please by signing and returning the lower portion of this
letter.

DB/V
ENCLOS.

D. Bate

(Mrs.) D. Bate,
for Superintendent of Research.

Pa. 84354-29-5-4

20-1-44



MEMORANDUM

SECRET

TO: DSD (W)

DEPARTMENT OF NATIONAL DEFENCE

H.Q.S. 4354-29-5-4 (DCW & S)

DATE: 15 Jan 44

Canadian Chemical Warfare Reports

Forwarded herewith, for your information,
and retention, please find copy No. 29 of the
following report(s)

C.W. Laboratories Physiological Section Report
No. 30.



for D.C.W. & S.

PA 84354-29-5-4

17-1-44

dc