

## NOTE TO USERS

PREVIEW

This reproduction is the best copy available.

**UMI**<sup>®</sup>

PREVIEW

UNIVERSITY OF NEBRASKA LIBRARIES

MANUSCRIPT THESIS

Permission to use this thesis has been given by the author or department under whose direction it is written.

Approved by author .....

✓ Approved by department *E. S. Hamilton* .....

It is expected that proper credit will be given for any quotations taken from this work. Extensive copying or publication of the thesis in whole or in part requires the written consent of the author or department.

This thesis has been used by the following persons, whose signatures attest their acceptance of the above restrictions.

A library which borrows this thesis for use by its patrons is expected to secure the signature of each user.

---

NAME AND ADDRESS

DATE

---

PREVIEW

**sym. TRIAZINE COMPOUNDS  
CONTAINING ARSENIC**

by

**Ivan H. Witt**

**A THESIS**

**Presented to the Faculty of  
the Graduate College in the University of Nebraska  
in Partial Fulfillment of Requirements for the  
Degree of Doctor of Philosophy  
Department of Chemistry**

**Lincoln, Nebraska**

**June 9, 1944**

**UNIVERSITY  
OF NEBRASKA  
LIBRARY**

UMI Number: DP14023

### INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

**UMI<sup>®</sup>**

---

UMI Microform DP14023

Copyright 2006 by ProQuest Information and Learning Company.

All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest Information and Learning Company  
300 North Zeeb Road  
P.O. Box 1346  
Ann Arbor, MI 48106-1346

The author wishes to express his appreciation to Dr. C. S. Hamilton who suggested the problem and guided its study, and to Parke, Davis and Company for a research grant.

415803

# TABLE OF CONTENTS

	Page
I. Introduction . . . . .	1
II. Discussion . . . . .	3
III. Graphical Summary . . . . .	11
IV. Experimental . . . . .	14
A. Preparation of 2-(2' or 4'-arsenophenoxy)-4,6-diamino-s-triazine and related compounds. . . . .	14
1. Cyanuric acid	
2. Cyanuric chloride	
3. 2-Chloro-4,6-diamino-s-triazine	
4. 2-(4'-Nitrophenoxy)-4,6-diamino-s-triazine	
5. 2-(4'-Aminophenoxy)-4,6-diamino-s-triazine	
6. 2-(4'-Arsenophenoxy)-4,6-diamino-s-triazine	
7. 2-(4'-Arsonothiophenoxy)-4,6-diamino-s-triazine	
8. 2-(2'-Nitro-4'-arsenophenoxy)-4,6-diamino-s-triazine	
9. 2-[4'-Di-(carboxymethylene-thio)-arsenophenoxy]-4,6-diamino-s-triazine	
10. 2-(2'-Nitrophenoxy)-4,6-diamino-s-triazine	
11. 2-(2'-Aminophenoxy)-4,6-diamino-s-triazine	
B. Preparation of 2-(4'-arsenophenoxy)-4-amino-6-ethylamino-s-triazine and related compounds. . . . .	22
1. 2,4-Dichloro-6-ethylamino-s-triazine	
2. 2-Chloro-4-amino-6-ethylamino-s-triazine	
3. 2-(4'-Nitrophenoxy)-4-amino-6-ethylamino-s-triazine	



4.	2-(4'-Aminophenoxy)-4-amino-6-ethylamino-s-triazine	
5.	2-(4'-Arsonophenoxy)-4-amino-6-ethylamino-s-triazine	
C.	Preparation of 2-(4'-arsonophenoxy)-4,6-diethylamino-s-triazine. . . . .	24
1.	2-Chloro-4,6-diethylamino-s-triazine	
2.	2-(4'-Nitrophenoxy)-4,6-diethylamino-s-triazine	
3.	2-(4'-Aminophenoxy)-4,6-diethylamino-s-triazine	
4.	2-(4'-Arsonophenoxy)-4,6-diethylamino-s-triazine	
5.	2-[4'-Di-(carboxymethylene-thio)-arsenosophenoxy]-4,6-diethylamino-s-triazine	
D.	Preparation of dimorpholino-s-triazine derivatives. . . . .	28
1.	2-Chloro-4,6-dimorpholino-s-triazine	
2.	2-(4'-Arsonoanilino)-4,6-dimorpholino-s-triazine	
3.	2-(4'-Nitrophenoxy)-4,6-dimorpholino-s-triazine	
4.	2-(4'-Aminophenoxy)-4,6-dimorpholino-s-triazine	
V.	Analytical . . . . .	31
VI.	Summary . . . . .	32
VII.	Bibliography . . . . .	33