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Company, 2010

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY DUGWAY PROVING GROUND
DUGWAY UT 84022-5000

January 26, 2010

REPLY TO
ATTENTION OF:

Office of the Command Judge Advocate


We are in receipt of your email in which you request copies of citations for reports produced by several corporate authors. Please find the following bibliographies enclosed:

- a. Whirlpool Corporation – there are 23 records. Twenty of these documents are still classified.
- b. Proctor and Gamble – there were six documents located and all are unclassified.
- c. General Mills, Inc. – there are 151 documents, the majority of which are classified.
- d. Cornell Aeronautical Lab Inc. – there are 280 documents, the majority of which are classified.
- e. Dow Chemical – there were 62 records located, six of which are still classified.

Your request was processed in accordance with the provisions of the Freedom of Information Act (FOIA), 5 USC Section 552. While you agreed to pay processing costs, they were less than the minimum charge.

If you have questions regarding our response to your request, please direct them to Ms. Teresa S. Shinton, FOIA Officer, US Army Dugway Proving Ground, Legal Office, 5450 Doolittle Avenue MS#2, Dugway, Utah 84022-5002; telephone (435) 831-3333; email: teresa.shinton@us.army.mil

Sincerely,


Kateni T. Leakehe
Major, US Army
Command Judge Advocate

Enclosures

Date: 20100125

Criteria: (CORPAUTHOR CONTAINS_AND {dow chemical})

Execution Time: 0.656 seconds

Your search yielded 62 records.

STAFF - S/(AllCaveats) Copyright - Y Export - Y

CBRNIAC Number: CB-007591

Site Holding: CB DT

AD Number: A953091

Title: Research on Foam-in-Place Equipment to Produce Shell Structures.

Author(s): Palfey, A. J.

Report Number: FPS-435-14

Publish Date: 19730101

Abstract: (Abstract is unavailable.)

Descriptive Note: Interim report 3 Jan 72-2 Jan 73 on Phase 1

Corp Author Name: DOW CHEMICAL U S A MIDLAND MICH FUNCTIONAL PRODUCTS AND SYSTEMS

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: AUTOMATED CONSTRUCTION; BOOMS(EQUIPMENT); DISPENSERS; DOME STRUCTURES; FOAM; FOAM IN PLACE CONSTRUCTION; FOAM-IN-PLACE URETHANE; PLASTIC BUILDINGS; POLYURETHANE FOAM; POSITIONING DEVICES(MACHINERY); PUMPS; SHELLS(STRUCTURAL FORMS); SHELTERS; SPIRAL GENERATION; U/A REPORTS; URETHANES; WALLS

Page Count: 117

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: See also Phase 2, AD-A019 709.

CBRNIAC Number: CB-013028

Site Holding: CB D751353

AD Number:

Title: An Analytical Technique for Permeation Testing of Compounds With Low Volatility and Water Solubility.

Author(s): Spence, Mark W.

Report Number: ISBN 0-8031-1167-3

Publish Date: 19870119

Abstract: One of the most challenging problems currently facing researchers in the field of Chemical Protective Clothing (CPC) permeation testing is how to perform tests for compounds that have low volatility and low water solubility. Permeation testing with these compounds is difficult because an inert gas or water are currently the only permeant collection media that one can use with the assurance that the CPC material will be unaffected by the collection medium. An approach to solving this problem using an automated sample concentrating technique in conjunction with gas chromatography is described. Such a technique allows determinations of breakthrough times and permeation rates while maintaining the permeant concentration in the collection medium at very low levels through the use of relatively high collection medium flow rates. By keeping the permeant concentration low enough to remain within the volatility limit of the compound being tested, the range of compounds that can be tested using air or nitrogen as the collection medium is greatly expanded.

Descriptive Note: Conference Paper

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Availability: American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103-1187.

Subject Keywords: CYCLIC HYDROCARBONS; HERBICIDES; MATERIALS TESTS; ORGANIC CHEMICAL COMPOUNDS; PERMEATION; PERMEATION RATE; PERMEATION TESTS; PHYSICAL PROPERTIES; SOLUBILITY; VOLATILITY

Page Count: 9

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Paper presented at the Second International Symposium on the Performance of Protective Clothing, pages 277-285, held in Tampa, FL, 19-21 Jan 87. This meeting was sponsored by the ASTM committee F-23 on protective clothing.

CBRNIAC Number: CB-017273

Site Holding: CB D751768

AD Number:

Title: A Proposed Basis for Characterizing and Comparing the Permeation Resistance of Chemical Protective Clothing Materials.

Author(s): Spence, Mark W.

Report Number:

Publish Date: 19840716

Abstract: A common problem among users of chemical protective clothing is the lack of a practical, consistent basis for comparing and characterizing the permeation barrier effectiveness of different protective clothing materials. This becomes a particular problem for generic material (for example, neoprene) for which differences in raw materials, additives, and manufacturing techniques can result in differences in permeation resistance for the same material made by different manufactures. An approach to resolving this problem is described which uses permeation testing with a solubility-parameter-based set of test chemicals as a basis for comparing clothing materials. A proposed test battery is presented, and the rationale behind it, as well as its potential usefulness, is discussed.

Descriptive Note: Conference Paper

Corp Author Name: DOW CHEMICAL MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Availability: Performance of Protective Clothing (CB-017270), STP900, 32-38.

Subject Keywords: ACETONITRILE; BREAKTHROUGH TIME; BUTYL RUBBER; CARBON TETRACHLORIDE; CHEMICAL PROTECTION; CHEMICAL PROTECTIVE CLOTHING; CHEMICAL TEST BATTERY; CLOTHING; HEXANES; MATERIAL SELECTION; MATERIALS PROPERTIES; METHYL ETHYL KETONE; NEOPRENE RUBBER; PERMEABILITY; PERMEATION; PERMEATION RATE; PERMEATION RESISTANCE; PERMEATION TESTS; PROPYLENE GLYCOL MONOMETHYL ETHER; PROTECTIVE CLOTHING; SOLUBILITY PARAMETERS; TOLUENE

Page Count: 7

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: First International Symposium on the Performance of Protective Clothing, Raleigh, NC, 16-20 Jul 84.

CBRNIAC Number: CB-017292

Site Holding: CB D751787

AD Number:

Title: Managing the Selection and Use of Chemical Protective Clothing.

Author(s): Coletta, Gerard C. Spence, Mark W.

Report Number:

Publish Date: 19840716

Abstract: Five key elements important to the success of a chemical protective clothing management program are discussed and illustrated with a case study. These elements are (1) determining the likelihood of skin exposure, (2) identifying the consequences of direct skin contact, (3) establishing the levels of protection provided by available protective clothing, (4) making an appropriate selection and documenting the basis for the selection, and (5) training employees in the proper use of the selected items. These elements form the basis of an ongoing risk/benefit analysis intended to ensure maximum employee protection within constraints imposed by operating and business considerations.

Descriptive Note: Conference Paper

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Availability: Performance of Protective Clothing (CB-017270), STP900, 235-242.

Subject Keywords: CHEMICAL PROTECTION; CLOTHING; CLOTHING SELECTION; CONTACT HAZARD; DURABILITY; GLOVES; IMMERSION TESTS; INDIVIDUAL PROTECTION EQUIPMENT; MANUAL DEXTERITY; PERMEATION TESTING; PROTECTIVE CLOTHING LIMITATIONS; PROTECTIVE CLOTHING MANAGEMENT PROGRAM; PROTECTIVE CLOTHING USE; RISK ASSESSMENT; RISK/BENEFIT ANALYSIS; SKIN; SUITS

Page Count: 8

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: First International Symposium on the Performance of Protective Clothing, Raleigh, NC, 16-20 Jul 84.

CBRNIAC Number: CB-018528

Site Holding: CB DT

AD Number: 392966

Title: Thermal Dissemination of Chemical Agents.

Author(s): Lane, G. A. Flynn, J. P.

Report Number: PD-6-68

Publish Date: 19680901

Abstract: The objectives of the program have been the development of a pressed grain pyrotechnic formulation for disseminating a new agent, EA3580, and a castable polymer-bonded system for agent BZ. It was found possible to disseminate EA3580 from sucrose-fueled formulations in acceptable yield after absorption of the agent on a silica absorbent, Micro-Cel E. Most experimental work on EA3580 was done on its hydrochloride salt. Sugar-fueled and sulfur-fueled systems were thoroughly investigated using MgCO₃ and NaHCO₃ as coolants. Best yields were obtained from the ternary system, EA3580.HCl₃-sulfur-KClO₃. Formulation work on BZ was continued, using an epoxy-thiol-type binder developed under the previous contract. Improved pot-life and a smaller curing exotherm were obtained by use of plasticizers. New work on epoxy-thiol binder systems, using polyfunctional thiols as well as sulfur-containing epoxy resins, resulted in two promising polymeric binders. A high-yielding, nonhazardous, pressed grain-type munition for BZ was developed utilizing polysulfide fuels, and about 60 percent of the BZ in the munitions was usefully aerosolized.

Descriptive Note: Final Comprehensive Annual Report, Jun 1967-Jun 1968

Corp Author Name: DOW CHEMICAL CO MIDLAND MI CHEMICALS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors. Other requests for this document shall be referred to Commanding Officer, Army Edgewood Arsenal, Attn: SMUEA-TSTI-T, Edgewood Arsenal, MD 21010.

Subject Keywords: 3-QUINUCLIDINYL BENZILATE; AEROSOLS; BINDERS; BZ; BZ AGENTS; CASTABLE PYROTECHNICS; CASTING; CHEMICAL AGENTS; CHEMICAL WARFARE AGENTS; CHLORIDES; COOLANTS; DECOMPOSITION; DISPERSION MODELS; DISTRIBUTION; EA AGENT 3580; EA3580; EPOXY RESINS; FUELS; HYDROCHLORIDES; IGNITION; INCAPACITATING AGENTS; IODIDES; PICRATES; POINT-SOURCE DISSEMINATION; POLYMERS; PROPELLANT GRAINS; PYROTECHNIC DISSEMINATION; PYROTECHNIC PROPERTIES; PYROTECHNICS; SALTS; SENSITIVITY; SMOKE AND OBSCURANTS; THERMAL DISSEMINATION; THERMAL PROPERTIES; THIOLS

Page Count: 26

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Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: Edgewood Arsenal Department of the Army notice 12 Feb 76 20000112 -- C to U.

CBRNIAC Number: CB-018529

Site Holding: CB DT

AD Number: 481387

Title: Polymer-Based Pyrotechnic Formulations for the Dissemination of Colored Smokes.

Author(s): Lane, George A. Jankowiak, E. M.

Report Number:

Publish Date: 19650401

Abstract: This report presents the results of a ten-month program to develop castable or extrudable pyrotechnic formulations for the thermal dissemination of colored smoke. The advantages of these formulations over the conventional pressed grains are extensive, relating to increased safety and ease of processing, improved economics, and wider applicability. In order to be useful, the formulations developed should have the properties of curing at room or slightly elevated temperature to a tough strong grain which will maintain its shape under surveillance at 70 C. The goal has been also to produce an easily ignited, reproducible, smooth burning formulation, which will yield a colored smoke of a quality comparable to that of current pressed-grain standard formulations.

Descriptive Note: Final Technical Summary Report, 13 Apr 64-13 Feb 65

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: ADHESION; AGING (MATERIALS); AMINES; AROMATIC COMPOUNDS; BENZENE; BINDERS; BURNING RATE; CASTING; CATALYSTS; CHLORATES; COLORED SMOKE; COLORED SMOKES; COMBUSTION; COPOLYMERIZATION; DISPERSION MODELS; EPOXY RESINS; ETHERS; EXTRUSION; FEASIBILITY STUDIES; GLYCEROLS; OXYGEN HETEROCYCLIC COMPOUNDS; PARTICLE SIZE; POLYMERS; POLYSULFIDE RUBBER; POTASSIUM CHLORATE; POTASSIUM COMPOUNDS; PYROTECHNIC DISSEMINATION; PYROTECHNICS; SCATTERING; SMOKE AGENT PROPERTIES; SMOKE AND OBSCURANTS; SMOKE PHYSICAL PROPERTIES; SULFIDES; SURFACE ACTIVE SUBSTANCES; SYNTHETIC RUBBER; THERMAL EXPANSION; VISCOSITY

Page Count: 23

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Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: ST-A US Army Edgewood Arsenal letter 13 Dec 71.

CBRNIAC Number: CB-018530

Site Holding: CB DT

AD Number: 371944

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-9-65

Publish Date: 19650901

Abstract: Efforts on polymer-based formulations have been concerned mainly with the dissemination of CS. Binders based on epoxy-liquid polysulfide copolymers cured with anhydrides appear promising. Both conventional fuels and nitrogen-rich fuels are being studied for EA 3443 dissemination. Yields have so far been rather low, perhaps indicating a susceptibility of EA 3443 to pyrolysis or oxidation. Surveillance testing has shown about the same compatibility pattern for EA 3443 as for BZ. Work is going forward to optimize BZ formulations based on nitrogen-containing fuels. CS surveillance studies have shown a lessened compatibility when pressed pills are used rather than loose powders.

Descriptive Note: Bi-monthly Progress Report, 13 Jun-13 Aug 65

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: 3-QUINUCLIDINYL BENZILATE; AEROSOL GENERATORS; AGING (MATERIALS); ANHYDRIDES; BINDERS; CASEIN; CHEMICAL AGENTS; CHEMICAL WARFARE AGENTS; CHLORINE COMPOUNDS; DIFFERENTIAL THERMAL ANALYSIS; DISPERSION MODELS; DISTRIBUTION; EA AGENT 3443; EA3443; EPOXY RESINS; FUELS; GLYCEROLS; GRAPHICS; INCAPACITATING AGENTS; INFRARED SPECTROSCOPY; LIQUIDS; NITROGEN COMPOUNDS; ORTHOCHLOROBENZYLIDENE MALONONITRILE; OXIDATION; POLYMERS; POWDERS; PYROLYSIS; PYROTECHNIC DISSEMINATION; PYROTECHNICS; SMOKE AND OBSCURANTS; SULFIDES

Page Count: 24

CB Collection: UA

Media Type: PDF
Document Classification: U
Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAC Number: CB-018531
Site Holding: CB DT
AD Number: 371945
Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.
Author(s): Lane, George A.
Report Number: PD-10-65
Publish Date: 19651101

Abstract: Research and development work on pyrotechnic formulations for agent dissemination proceeded with emphasis on EA 3443 systems. EA 3443 is subject to considerable thermal degradation. Yields were increased by lowering the flame temperature, but results remain disappointing. Pressed grain munitions using MAG HNO₃, EBS, or sulfur fuel are under study, with NaHCO₃ or guanidinium carbonate (GuCO₃) as a coolant. One formulation containing EA 3443, sulfur, NaHCO₃, and KClO₃ gave an efficiency of 46% and agent yield of 23%. Sensitivity testing on EA 3443 mixtures showed it to be similar to BZ in spark sensitivity, but less impact sensitive. DTA studies of EA 3443 compositions were completed. Development of castable polymer-fueled EA 3443 formulations is progressing. Research on liquid polysulfide (LP) binder, epoxy binder, and epoxy-LP copolymer binder led to selection of the Epoxy-LP system for largest future emphasis. Agent returns were disappointing, but improvements are expected. Optimization studies are being carried out on BZ pressed grain formulations, fueled by MAG HNO₃, EBS, or TAZ. BZ has been shown more sensitive than CS to pyrolysis or oxidation during firing, but not as vulnerable as EA 3443. Addition of coolant appears necessary. Considerable progress was made toward a castable polymer-bonded CS formulation. Agent yield of 33% and efficiency of 73% were obtained on one promising QX-2679 - LP-33 - MA - CS - KClO₃ composition.

Descriptive Note: Bimonthly Progress Report, 13 Aug-13 Oct 65

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: 3-QUINUCLIDINYL BENZILATE; AEROSOL GENERATORS; AGING (MATERIALS); AMINES; AZIDES; BINDERS; BURNING RATE; BZ AGENTS; CASTABLE PROPELLANTS; CASTING; CHEMICAL AGENTS; CHEMICAL WARFARE AGENTS; CHLORATES; COOLANTS; DIFFERENTIAL THERMAL ANALYSIS; DISPERSION MODELS; DISTRIBUTION; EA AGENT 3443; EA3443; EPOXY RESINS; FUELS; GUANIDINE CARBONATE; GUANIDINE NITRATE/MONOAMINO; GUANIDINE NITRATE/TRIAMINO; GUANIDINES; INCAPACITATING AGENTS; MAG NITRATE FUELS; MIXTURES; NITRATES; ORGANIC SULFUR COMPOUNDS; POLYMERS; POTASSIUM COMPOUNDS; PYROLYSIS; PYROTECHNIC DISSEMINATION; PYROTECHNICS; SENSITIVITY; SMOKE AND OBSCURANTS; SULFIDES; SULFUR; TAZ PROPELLANTS; THERMAL DISSEMINATION; THERMAL STABILITY; THIOSEMICARBAZIDE/ETHYLENE; THIOUREA

Page Count: 44

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Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAC Number: CB-018532
Site Holding: CB DT
AD Number: 371946
Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.
Author(s): Lane, George A.
Report Number: PD-11-65
Publish Date: 19660128

Abstract: Dissemination of EA 3443 is under study from pressed-grain munitions based on sulfur, sugar or thiourea as the fuel. Guanidinium carbonate is under investigation as a coolant. One sulfur-guanidinium carbonate-KClO₃-EA 3443 composition gave an agent yield of 25%. BZ dissemination studies emphasized the fuels ethylene bis(thiosemicarbazide) (EBS) and aminoguanidinium nitrate (MAG HNO₃). Guanidinium nitrate was used as a

coolant in EBS-fueled compositions. Yields of 30% were attained with these fuels. Surveillance tests on CS munitions fueled with EBS, MAG HNO₃ or triaminoguanidinium nitrate showed no decrease in yield after four weeks. Progress was made on castable CS formulations. Ten-gram grains containing 45% CS and 25% QX-2679.1 maleic anhydride binder disseminated CS with 67 to 95% efficiencies. Research continued on castable formulations for EA 3443 for dissemination. Efforts were centered on Epon 812-IP-8 copolymer cured with benzylidimethylamine.

Descriptive Note: Bimonthly Progress Report, 13 Oct-13 Dec 65

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: 3-QUINUCLIDINYL BENZILATE; ADDITIVES; AEROSOL GENERATORS; AGING (MATERIALS); AMINES; BINDERS; BURNING RATE; BZ AGENTS; CARBOHYDRATES; CASCIN; CASTABLE PROPELLANTS; CASTING; CHEMICAL AGENTS; CHEMICAL WARFARE AGENTS; CHLORATES; COMBUSTION; COOLANTS; DENSITY; DISPERSION MODELS; DISTRIBUTION; EA AGENT 3443; EA3443; EPOXY RESINS; ETHYLENE BIS (THIOSEMICARBAZIDE); FUELS; GUANIDINE CARBONATE; GUANIDINE NITRATE/MONOAMINO; GUANIDINE NITRATE/TRIAMINO; GUANIDINES; INCAPACITATING AGENTS; MAG NITRATE FUELS; MALEIC ANHYDRIDE; MALONITRILE; NITRATES; ORGANIC SULFUR COMPOUNDS; ORTHOCHLOROBENZYLIDENE; PARTICLE SIZE; POLYMERS; POTASSIUM COMPOUNDS; PYROTECHNIC DISSEMINATION; PYROTECHNICS; SMOKE AND OBSCURRANTS; SULFIDES; SULFUR; THERMAL DISSEMINATION; THERMAL STABILITY; THIOSEMICARBAZIDE/ETHYLENE; THIOUREA; UREIDES

Page Count: 34

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Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAC Number: CB-018533

Site Holding: CB DT

AD Number: 371947

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-12-66

Publish Date: 19660310

Abstract: The four most promising fuel systems for the dissemination of CS included: MAG HNO₃ (monoaminoguanidinium nitrate), EBS (ethylenebis(isothiosemicarbazide)), TAG HNO₃ (triaminoguanidinium nitrate) and DTB (dithiobiurea). The characteristic yields of CS from munitions with these fuels was about 50% at 80% efficiency. Research on EA-3443 has emphasized optimization of agent yield, high temperature surveillance and safety studies. EA-3443 was found to degrade during the dissemination process at temperatures much above 300 degrees C. The best fuel systems were based on sulfur and thiourea. Yields were in the order of 20% at about 40% efficiency. Studies on agent return optimization, surveillance, and handling safety have been stressed in the area of BZ dissemination. The MAG HNO₃ has been optimized and offers the advantages of somewhat higher yields and much greater processing safety than current mixes. Efforts were directed at the development of castable polymer-fueled systems for disseminating CS and EA-3443. CS containing formulations based on the epoxy resin QZ-2679 cured with maleic anhydride were castable, have satisfactory curing properties, are easily ignited, burn rapidly and gave a cloud of CS with high efficiency. The munitions appeared to be stable to long-term surveillance at elevated temperatures. The polymer fuel system chosen for optimization for the dissemination of EA-3443 was based on the epoxy resin GDGE and the liquid polysulfide resin LP-8.

Descriptive Note: Bimonthly Progress Report, 13 Dec 65-13 Feb 66

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: 3-QUINUCLIDINYL BENZILATE; AEROSOL GENERATORS; AGING (MATERIALS); AMINES; AZIDES; BINDERS; BURNING RATE; BZ AGENTS; CASEIN; CASTABLE PROPELLANTS; CASTING; CHEMICAL AGENTS; CHEMICAL WARFARE AGENTS; CHLORATES; COMBUSTION; COOLANTS; DENSITY; DISPERSION MODELS; DISTRIBUTION; DITHIOBIUREA; DTB FUEL; EA AGENT 3443; EA3443; EPOXY RESINS; ETHYLENE BIS (THIOSEMICARBAZIDE); FUELS; GUANIDINE

NITRATE/MONOAMINO; GUANIDINE NITRATE/TRIAMINO; GUANIDINES; INCAPACITATING AGENTS; MAG NITRATE FUELS; MALEIC ANHYDRIDE; NITRATES; ORGANIC SULFUR COMPOUNDS; ORTHOCHLOROBENZYLIDENE MALONONITRILE; PARTICLE SIZE; POLYMERS; POTASSIUM COMPOUNDS; PYROTECHNIC DISSEMINATION; PYROTECHNICS; SMOKE AND OBSCURANTS; SULFIDES; THERMAL DISSEMINATION; THERMAL STABILITY; THIOSEMICARBAZIDE/ETHYLENE; THIOUREA

Page Count: 33

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAC Number: CB-021162

Site Holding: CB DW F00231

AD Number:

Title: Terminal Effectiveness of Various Heat Projectiles.

Author(s): Wise, S.

Report Number: BRL-MR-1049

Publish Date: 19640701

Abstract: The testing chamber has been completed, and a program has begun to test for leaks, determine the completeness of mixing, and check out all operations. Formulation studies have been pursued in the areas of incremental improvements, nitrogen compounds, and polymer-bonded compositions. Research on incremental improvements has emphasized the study of guanidinium carbonate as a coolant, research on thiourea-fueled systems, and exploratory work on guanidinium nitrate and nitro-guanidine. Nitrogen chemistry has centered on polytaz and malonitaz, but so far the only formulations which could be ignited have contained too much oxidizer, and burned too hot. Several binders have been studied for polymer-bonded castable systems: an epoxy -- vinyl ester -- styrene polymer, a disulfide epoxy, a bisphenol -- an epoxy, a polyethylene grease, and several water-dispersible resins. Compatibility experiments have shown reaction between CS and polytaz, malonitaz, THA or TAZ at and below the 70 degree Celcius. Preliminary experiments showed that the use of a styrene-butadiene latex is a promising method of coating CS.

Descriptive Note: Bimonthly Progress Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; NOFORN. Other requests for this document shall be referred to Army Materiel Command, Attn: AMCMU-IS, Washington, DC. This document contains export-controlled technical data.

Subject Keywords:

Page Count: 49

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-021163

Site Holding: CB DT DW F00232

AD Number: 371938

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-3-64

Publish Date: 19640901

Abstract: Improved mixing efficiency was accomplished in the toxic test chamber by placing a second fan in the lower center of the tank. Good mixing efficiency was obtained by pushing air upward. An occasional flocculation phenomenon was observed in the test chamber which has not been accounted for. Formulation research in the area of nitrogen and nitrogen-sulfur compounds centered on aminoguanidinium azide and nitrate salts, and aminothiourea derivatives. The key to utilization of aminoguanidine salts appears to be the use of burning catalysis, such as chromium, copper, or other compounds. The most promising of the nitrate salts studied is MAG HNO₃. Ethylenebis

(thiosemicarbazide) (EBS) is the most promising of the aminothiourea derivatives investigated and gives efficiencies and smoke yields superior to thiourea. EBS and the nitrate salts appear compatible with chemical agents under various conditions. In the area of polymer-bonded colored smoke formulations, a disulfide-containing epoxy resin, cured with oxalic acid, is receiving the greatest attention. Good combustion and fairly good smoke quality are being achieved. DTA continues to be a useful tool in the compatibility area, and numerous CS and BZ mixtures have been studied.

Descriptive Note: Bimonthly Progress Report, 13 Jun-13 Aug 64

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: AZIDES; BENZILATE/3-QUINUCLIDINYL; BURNING RATE; BZ AGENTS; CHEMICAL WARFARE AGENTS; CHLORATES; CHROMATES; COLORED SMOKES; COMPATIBILITY; CONTROLLED ATMOSPHERES; CS AGENTS; DB 27 PROPELLANT INGREDIENT; DISTRIBUTION; EBS (ETHYLENE BIS (THIOSEMICARBAZIDE)); EPOXY RESINS; ETHYLENE BIS (THIOSEMICARBAZIDE); ETHYLENEDIAMINE; FUELS; GAS ANALYSIS; GUANIDINE AZIDE/TRIAMINO; GUANIDINES; HYDRAZINE DERIVATIVES; IMPACT TESTS; INCAPACITATING AGENTS; NITRATES; NITRILES; OPTIMIZATION; PLASTIC BONDED EXPLOSIVES; PYROTECHNICS; RDX; STOICHIOMETRY; TAZ (GUANIDINE AZIDE/TRIAMINO); TAZ PROPELLANTS; THERMAL ANALYSIS; THIOUREA

Page Count: 66

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAAC Number: CB-021164

Site Holding: CB DT

AD Number: 371939

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-4-64

Publish Date: 19641101

Abstract: Mixing problems in the cylindrical test chamber have been solved, and tests with freon gas have led to a leak-free chamber. Mixing homogeneity tests on the cube-shaped chamber showed good mixing. Four compounds showed promise as coolants in initial tests: aminoguanidinium bicarbonate (AGBC), oxamide, urea oxalate (UOX) and oxalic dihydrazide (OXDH). Continuing research in the fuels area resulted in optimization of several promising fuel systems. Aminoguanidinium nitrate (MAG HNO₃) gives efficiencies of 62-64% and smoke yields of 31-32% with MAAQ red dye. A study of the effect of fuel particle size showed an increase in burning rate at the smaller particle sizes, but little effect on dissemination efficiency. Aminonitroguanidine is a promising fuel, giving efficiencies of 74% and smoke yields of 38% with MAAQ. Cyanoguanidine with MAAQ gave efficiencies of about 59% and smoke yields of 34%.

Descriptive Note: Bimonthly Progress Report, 13 Aug-13 Oct 64

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: AMIDES; ANTHRACENES; BICARBONATES; BINDERS; BURNING RATE; CHEMICAL WARFARE AGENTS; COLORED SMOKES; COMPATIBILITY; COOLANTS; DIFFERENTIAL THERMAL ANALYSIS; DISTRIBUTION; DYES; FEASIBILITY STUDIES; FRICTION; FUELS; GUANIDINE BICARBONATE/AMINO; GUANIDINE NITRATE/MONOAMINO; GUANIDINE/CYANO; GUANIDINES; HALOGENATED HYDROCARBONS; HYDRAZINE DERIVATIVES; IMPACT SHOCK; INCAPACITATING AGENTS; MAG NITRATE FUELS; NITRATES; NITRILES; OXALATES; OXALIC ACID; OXALIC DIHYDRAZIDE; OXAMIDE; PARTICLE SIZE; PYROTECHNICS; QUINONES; SENSITIVITY; SPARKS; THERMAL DISSEMINATION; UREA OXALATE; UREIDES

Page Count: 58

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAC Number: CB-021165

Site Holding: CB DT

AD Number: 371940

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-5-64

Publish Date: 19650101

Abstract: Research and development efforts in the formulation area resulted in further progress on coolant studies, nitrogen-containing fuels, and polymer-bonded formulations. Aminoguanidinium bicarbonate (AGBC), oxamide, urea oxalate (UOX), and oxalic dihydrazide (OXDH) are being evaluated as coolants, and continue to show promise. Three nitrogen-containing fuels were selected for optimization with CS; namely ethylenebis(thiosemicarbazide) (EBS), aminoguanidinium nitrate (MAG HNO₃), and aminonitroguanidine (ANG), and initial results were favorable. Screening tests indicated that triaminoguanidinium nitrate (TAG HNO₃) and dithiobiurea (DTB) are promising as fuels. Further tests will be run. The optimum catalyst (K₂CrO₄) level was determined for the MAG HNO₃ system, and was about 1.0%.

Descriptive Note: Bimonthly Progress Report, 13 Oct-13 Dec 64

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: AMIDES; ANTHRACENES; BICARBONATES; BURNING RATE; BZ AGENTS; CHEMICAL WARFARE AGENTS; CHROMATES; COLORED SMOKES; COMPATIBILITY; COOLANTS; DIFFERENTIAL THERMAL ANALYSIS; DISTRIBUTION; DITHIOBIUREA; DTB FUEL; EPOXY RESINS; ETHYLENE BIS (THIOSEMICARBAZIDE); FEASIBILITY STUDIES; FRICTION; FUELS; GUANIDINE BICARBONATE/AMINO; GUANIDINE NITRATE/MONOAMINO; GUANIDINE NITRATE/TRIAMINO; GUANIDINES; HYDRAZINE DERIVATIVES; IMPACT SHOCK; INCAPACITATING AGENTS; IRRITATING AGENTS; MAG NITRATE FUELS; NITRATES; ORGANIC SULFUR COMPOUNDS; OXALATES; OXALIC ACID; OXALIC DIHYDRAZIDE; OXAMIDE; POTASSIUM CHROMATE; POTASSIUM COMPOUNDS; PYROTECHNICS; QUINONES; SENSITIVITY; SPARKS; THERMAL DISSEMINATION; THIOSEMICARBAZIDES; UREA; UREIDES

Page Count: 54

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAC Number: CB-021166

Site Holding: CB DT

AD Number: 371941

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-6-65

Publish Date: 19650401

Abstract: A toxic test chamber was constructed and is being used for the assessment of agent aerosols. Initial difficulties with fan location were overcome, and very homogeneous mixing is obtained. Several small leaks were detected by Freon or CS testing and repaired. The chamber is believed leak-free. Methods of analyzing for MAAQ, CS and BZ were adopted. In several cases, degradation of agent as sampled or in solution was encountered and overcome. Excellent assessment reproducibility, with average deviations of 1-2%, was obtained, except in the case of formulations containing NaHCO₃, which gave quite scattered results. Sulfur and thiorea fueled formulations were briefly examined as examples of the current art. Several coolants were investigated, and AGBC (aminoguanidinium bicarbonate), oxamide, OXDH (oxalic dihydrazine), and UOX (urea oxalate) appear promising.

Descriptive Note: Annual Progress Report, 13 Feb 64-13 Feb 65

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors;

Administrative/Operational Use; 1 Apr 65. Other requests for this document shall be referred to Edgewood Arsenal, Aberdeen Proving Ground MD.

Subject Keywords: ADDITIVES; AEROSOL GENERATORS; AMIDES; ANTHRACENES; AZIDES;

BICARBONATES; BZ AGENTS; CHEMICAL ANALYSIS; CHEMICAL WARFARE AGENTS; COLORED SMOKES; COMPATIBILITY; COOLANTS; DISTRIBUTION; DITHIOBIUREA; DTB FUEL; ETHYLENEDINITRAMINE; FEASIBILITY STUDIES; FORMULATION; FUELS; GUANIDINE BICARBONATE/AMINO; GUANIDINE NITRATE/MONOAMINO; GUANIDINE NITRATE/TRIAMINO; GUANIDINES; HYDRAZINE DERIVATIVES; IMPACT SHOCK; NITRAMINES; NITRATES; ORGANIC SULFUR COMPOUNDS; OXALATES; OXALIC ACID; OXALIC DIHYDRAZIDE; OXAMIDE; PYROTECHNICS; QUINONES; SAMPLING; SENSITIVITY; SODIUM COMPOUNDS; SPARKS; SULFUR; TAZ PROPELLANTS; THERMAL DISSEMINATION; THIOSEMICARBAZIDES; UREA OXALATE

Page Count: 72

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: 30 Apr 77, GP-4, DoDD 5200.10; 20031203 - C to U.

CBRNIAC Number: CB-021167

Site Holding: CB DT

AD Number: 371942

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-7-65

Publish Date: 19650501

Abstract: Research was concentrated on formulations for disseminating EA 3443, CS, and BZ, using nitrogen-rich fuels and polymeric binders. Several new nitrate salts were evaluated as fuels. Optimization of the CS - MAG HNO₃ system has been completed, with agent yields as high as 53% and efficiencies of 85%. The optimization study on the CS - EBS system is completed. Agent yields as high as 53% with up to 82% efficiency were obtained. This formulation is also recommended for further development and evaluation. Optimization of the CS - ANG system is proceeding, and results are encouraging. The formulation of EA 3443 in polymer bonded mixes is under study, using primarily LP-3 or DER 732 resins. At present, it seems that castability will be easy to achieve, but satisfactory combustion will be a harder problem. DTA studies were helpful in elucidating the compatibility of EA 3443 with previously studied nitrogen-rich fuels. Infrared studies on the compatibility of CS with a variety of binder ingredients were carried out. Several epoxy resins appear to be most promising from this standpoint. The compatibility of BZ with binder ingredients was studied by DTA, and certain epoxies and polysulfides seem most suitable.

Descriptive Note: Bimonthly Progress Report, 13 Feb-13 Apr 65

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: AEROSOL GENERATORS; AGING (MATERIALS); ALKENES; AMINES; AROMATIC COMPOUNDS; BINDERS; BURNING RATE; CHEMICAL WARFARE AGENTS; CHLORIDES; DIFFERENTIAL THERMAL ANALYSIS; DISTRIBUTION; EA AGENT 3443; ETHERS; FUELS; GLYCEROLS; GUANIDINE NITRATES; NITRATES; NITROGEN COMPOUNDS; PLASTICS; POLYMERS; POTASSIUM COMPOUNDS; PYROTECHNICS; SALTS; SENSITIVITY; SMOKE MUNITIONS; STABILITY; SULFIDES; TRIAZINES

Page Count: 132

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAC Number: CB-021168

Site Holding: CB DT

AD Number: 371943

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A.

Report Number: PD-8-65

Publish Date: 19650701

Abstract: AS-received EA-3443 contains impurities which lower the melting point, make the solid sticky and impart an amber color. The presence of impurities was determined by elemental analysis, differential thermal analysis, and thin layer chromatography. As-received EA-3443, when directly formulated with dry fuel and oxidizer and heated to the 72 C surveillance temperature melts and oozes out of the mixture. Solvent recrystallation results in dry, clear, colorless crystals which melt at about 50-60 C. Only two out of 16 gelling materials produce EA-3443 gels, but these gels, containing 14 wt.% or more gelling material, are not immobile enough at 72C. Absorption of EA-3443 on Micro-Cel E results in a workable formulation. One such formulation was test fired and produced a normal density white cloud. Burning time was less than three seconds.

Descriptive Note: Bimonthly Progress Report, 13 Apr-Jun 65

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: AEROSOL GENERATORS; AGING (MATERIALS); ALKENES; AMINES; ANHYDRIDES; AROMATIC COMPOUNDS; BENZENES; BURNING RATE; CARBON; CHEMICAL WARFARE AGENTS; COMPATIBILITY; CRYSTALS; DIFFERENTIAL THERMAL ANALYSIS; DISTRIBUTION; EA AGENT 3443; EPOXY RESINS; FUELS; GAS CHROMATOGRAPHY; GELS; GUANIDINE NITRATES; INCAPACITATING AGENTS; NITROGEN COMPOUNDS; PLASTICS; POLYMERIZATION; POLYMERS; PYROTECHNICS; STABILITY; SULFUR

Page Count: 44

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: C to U GP-4.

CBRNIAAC Number: CB-028253

Site Holding: CB DT

AD Number: A299261

Title: Field Evaluation of an Envirex GAC Fluid-Bed Bioreactor Treatment of Chlorobenzene in Groundwater.

Author(s): Carpenter, C.L. Clark, J.E. Killeka, G.M. McDaniel, S.G. Wilson, P.S.

Report Number: AL/EQ-TR-1994-0047

Publish Date: 19950201

Abstract: Although granular activated carbon (GAC), fluidized-bed bioreactors have been widely used for treatment of groundwater containing readily biodegradable organic compounds, there is only limited experience with treatment of chlorinated organics found at many DoD and industrial sites. This report summarizes performance data from a field evaluation of an Envirex model 30 bioreactor operated at various chlorobenzene concentrations and organic loading rates over a 7-month period. The work was conducted under a collaborative research and development agreement between US Air Force Armstrong Laboratory and the Dow Chemical Company. Microorganisms used to seed the bioreactor were provided by activated sludge from the site, as well as indigenous chlorobenzene-degrading bacteria present in the groundwater. Removal efficiencies exceeding 99.99% were achieved at organic loading rates between 6 and 10 pounds of total oxygen demand (lb TOD) per 25 cubic feet per day and hydraulic residence times of 7 minutes. Influent chlorobenzene concentrations ranging from 100 to 170 ppm were consistently reduced to below the detection limit of 10 ppb. Additional studies conducted at loading rates in excess of 10 pounds TOD per 25 cubic feet per day were useful for identifying critical operating parameters and potential system improvements, but were not representative of performance at lower loadings. Economic evaluation suggested that groundwater treatment costs for the bioreactor were lower than other conventional technologies.

Descriptive Note: Final Technical Report, Jun 93-Feb 94

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: ACTIVATED CARBON; ACTIVATED SLUDGE PROCESS; BACTERIA; BIODEGRADATION; BIODETERIORATION; CHEMICAL CONTAMINATION; CHEMICAL REACTORS; CHLOROBENZENE; COMPARISON; CONCENTRATION (CHEMISTRY); COST EFFECTIVENESS; ECONOMIC ANALYSIS; EFFICIENCY; FIELD TESTS; FLOW RATE; FLUIDIZED BED PROCESSES; GRANULES; GROUND WATER; OXYGEN; SOLVENTS; STOICHIOMETRY; WATER POLLUTION; WATER QUALITY; WATER TREATMENT

Page Count: 103

CB Collection: UA

Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAAC Number: CB-032274

Site Holding: CB

AD Number:

Title: Ethylene Oxide Second Edition User's Guide.

Author(s): Buckles, Carey Chipman, Pete Cubillas, Mary Lakin, Mike Slezak, Dan Townsend, David Vogel, Keith Wagner, Mike

Report Number:

Publish Date: 19990801

Abstract: (Abstract is unavailable.)

Descriptive Note: Guide

Corp Author Name: DOW CHEMICAL CO DENVER CO

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: AUTOIGNITION TEMPERATURE; BIODEGRADATION; BUBBLE POINT; CARCINOGENIC EFFECTS; COMBUSTIVE PROPERTIES; COMMERCIAL CHEMISTRY; CONDUCTIVITY; CONTAMINATION; CRITICAL COMPRESSION FACTOR; CRITICAL PRESSURE; CRITICAL TEMPERATURE; CRITICAL VOLUME; DECOMPOSITION; DECOMPOSITION TEMPERATURE; DIPOLE MOMENT; ECOTOXICOLOGICAL EFFECTS; ELECTRICITY; EMERGENCY/FIRST AID PROCEDURES; ENTROPY; EXPOSURE LIMITS; EYE PROTECTION; FLAMMABILITY; FLASH POINT; FUGITIVE EMISSIONS; GENETIC EFFECTS; GIBBS ENERGY; HYDROLYSIS; INHALATION; LIQUID VOLUME; MELTING POINT; MOLECULAR WEIGHT; NEUROLOGICAL EFFECTS; NORMAL BOILING POINT; PERSISTENCE IN AIR; PHYSICAL PROPERTIES; POLYMERIZATION; REACTIONS WITH RUST; REPRODUCTIVE EFFECTS; RESPIRATORY PROTECTION; SKIN CONTACT; SPECIFIC GRAVITY; STORAGE AND HANDLING PROCEDURES; TRANSPORTATION INCIDENTS; TRANSPORTATION REQUIREMENTS; TRIPLE POINT PRESSURE; TRIPLE POINT TEMPERATURE; UNLOADING REQUIREMENTS; WASTE DISPOSAL METHODS; WATER MIXTURES

Page Count: 96

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-035409

Site Holding: CB

AD Number:

Title: The Cataractogenic Activity of Chemical Agents.

Author(s): Gehring, Perry J.

Report Number:

Publish Date: 19710101

Abstract: A cataract is a partial to complete opacification of the lens of the eye. The opacity may be located on the surface of the lens, or within the crystalline material of the lens. Morphologically, the opacity may be diffuse, granular, striated, spicular, or ringshaped. Some individuals reserve the designation cataract for those opacifications of the lens which are persistent. Transient opacifications are often mistakenly termed lenticular opacities. Such division of terminology is confusing and unwarranted. It is more lucid to refer to both types of lesions as cataracts. Subsequently, the characteristics morphology, location, progressiveness and persistence of the cataract should be described.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: CRC Critical Reviews in Toxicology, 1: 93-118, September 1971.

Subject Keywords:

Page Count: 26
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-037175

Site Holding: CB

AD Number:

Title: Strategies to Assess Systematic Exposure of Chemicals in Subchronic/Chronic Diet and Drinking Water Studies.

Author(s): Saghir, Shakil A. Mendrala, Alan L. Bartels, Michael J. Day, Sue J. Hansen, Steve C. Sushynski, Jacob M. Bus, James S.

Report Number:

Publish Date: 20050609

Abstract: Strategies were developed for the estimation of systemically available daily doses of chemicals, diurnal variations in blood levels, and rough elimination rates in subchronic feeding/drinking water studies, utilizing a minimal number of blood samples. Systemic bioavailability of chemicals was determined by calculating area under the plasma concentration curve over 24 h (AUC-24 h) using complete sets of data (-5 data points) and also three, two, and one selected time points. The best predictions of AUC-24 h were made when three time points were used, corresponding to Cmax, a mid-morning sample, and Cmin. These values were found to be 103 T 10 percent of the original AUC-24 h, with 13 out of 17 values ranging between 96 and 105% of the original. Calculation of AUC-24 h from two samples (Cmax and Cmin) or one mid-morning sample afforded slightly larger variations in the calculated AUC-24 h (69-136 percent of the actual). Following drinking water exposure, prediction of AUC-24 h using 3 time points (Cmax, mid-morning, and Cmin) was very close to actual values (80-100 percent) among mice, while values for rats were only 63 percent of the original due to less frequent drinking behavior of rats during the light cycle. Collection and analysis of 1-3 blood samples per dose may provide insight into dose-proportional or non-dose-proportional differences in systemic bioavailability, pointing towards saturation of absorption or elimination or some other phenomenon warranting further investigation. In addition, collection of the terminal blood samples from rats, which is usually conducted after 18 h of fasting, will be helpful in rough estimation of blood/plasma half-life of the compound. The amount of chemical(s) and/or metabolite(s) in excreta and their possible use as biomarkers in predicting the daily systemic exposure levels are also discussed. Determining these parameters in the early stages of testing will provide critical information to improve the appropriate design of other longer-term toxicity studies.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI TOXICOLOGY AND ENVIRONMENTAL RESEARCH

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: Toxicology and Applied Pharmacology, 211: 245-260, 2006.

Subject Keywords:

Page Count: 16

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-040744

Site Holding: DT DW

AD Number: 801127

Title: Final Contract Report, 1 March 64-15 September 65.

Author(s): Barrons, Keith C.

Report Number:

Publish Date: 19650915

Abstract: (Abstract is unavailable.)

Descriptive Note: Final Contract Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH

Distribution Statement: Distribution limited to DoD agencies only. Other requests for this document shall be referred to Commanding Officer, Army Biological Labs, Attn: Technical Information, Fort Detrick, Frederick, MD 21701.

Subject Keywords: ALIPHATIC COMPOUNDS; AROMATIC COMPOUNDS; AZINES; CARBOXYLIC ACIDS; CHEMICAL COMPOUNDS; CHLORIDES; DEFOLIANTS; ESTERS; HALOGENATION; HERBICIDES; HYDROLYSIS; NITRIC ACID; NITROGEN HETEROCYCLIC COMPOUNDS; POLYCYCLIC COMPOUNDS; PYRIMIDINES; QUINOLINES; SYNTHESIS CHEMISTRY

Page Count: 38

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-044806

Site Holding: CB DT DW

AD Number: 371936

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents. Bimonthly Progress Report, 13 February-13 April 1964.

Author(s): Lane, George A.

Report Number: PD-1-64

Publish Date: 19640501

Abstract: (Abstract is unavailable.)

Descriptive Note: Bimonthly Progress Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution Controlled. All requests for this document shall be referred to Edgewood Arsenal, Aberdeen Proving Ground, MD.

Subject Keywords: BURNING RATE; CHEMICAL WARFARE AGENTS; COMPATIBILITY; COMPUTER PROGRAMMING; DISTRIBUTION; FUELS; GAS ANALYSIS; IGNITION; POTASSIUM COMPOUNDS; PYROLYSIS; PYROTECHNICS; STABILIZATION; THERMAL ANALYSIS; THERMOGRAVIMETRIC ANALYSIS

Page Count: 25

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-065734

Site Holding: CB

AD Number:

Title: Inhalation Toxicity of Acrylic Acid.

Author(s): Miller, R. R. Ayres, J. A. Jersey, G. C. McKenna, M. J.

Report Number:

Publish Date: 19810101

Abstract: Male and female Fischer 344 rats and B6C3F1 mice were exposed to 0, 5, 25 or 75 ppm acrylic acid vapors 6 hours per day, 5 days per week, for 13 weeks. These exposure levels were selected after conducting a 2-week probestudy in which 225 ppm caused pronounced growth retardation and nasal lesions in both rats and mice. The 13-week exposures had no adverse effect on the growth of male and female rats and male mice. However, mean body weight gains of female mice in the 25 and 75 ppm exposure groups were statistically significantly lower than for controls after 12 weeks of exposure. There were no pronounced treatment related effects on organ weights, hematologic parameters, clinical chemistry parameters or urinary parameters. Histopathologic examinations revealed lesions of the nasal mucosa in rats in the 75 ppm exposure group, and in some or all mice at each treatment level. The nasal lesions were primarily localized to the olfactory epithelium; the respiratory epithelium was relatively unaffected. The histopathologic observations in both rats and mice included degeneration, and inflammatory cell infiltration in the olfactory mucosa. In mice there were also instances of hyperplasia of the submucosal glands and replacement of olfactory epithelium by respiratory epithelium. These effects were attributed

to the irritant properties of acrylic acid vapors.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: Fundamental and Applied Toxicology, 1: 271-277, May-June 1981.

Subject Keywords:

Page Count: 7

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-065762

Site Holding: CB

AD Number:

Title: Ethylene Glycol Monomethyl Ether 11. Reproductive and Dominant Lethal Studies in Rats.

Author(s): Rao, K. S. Cobel-Geard, S R. Young, J. T. Hanley, T. R., Jr. Hayes, W. C. John, A. A. Miller, R. R. Han

Report Number:

Publish Date: 20071201

Abstract: Ethylene Glycol Monomethyl EtMr 11. Reproductive and Dominant Lethal Studies in Rats. Rao, K.S., Cobel-Geard, S. R., Young, J. T., Hanley, T.R., Jr., Hayes, W. C., John, J. A. and Miller, R. R. (1983). Fundam. Appl. Toxicol. 3:80-85. Groups of male and female Sprague-Dawley (CD) rats were exposed to 0,30,100, or 300 ppm ethylene glycol monomethyl ether (EGME) vapor 6 hours/day, 5 days/week for 13 weeks. The 0 and 30 ppm groups each contained 30 rats/sex and the 100 and 300 ppm groups each had 20 rats/sex. Following the exposure period, males were bred to unexposed females to evaluate reproductive capability and dominant lethality. Additional matings of control and 300 ppm exposed males were performed during the postexposure period in order to evaluate the recovery of fertility. Exposed females were bred with unexposed males to assess reproductive parameters. Results of the present study indicate a potential for inhaled EGME to completely suppress fertility in male rats at the 300 ppm level. Fertility of these rats was partially restored at 13 weeks post-exposure. Body weights of animals in the 300 ppm group were reduced as a result of the exposures. No dominant lethal effect or impaired fertility was observed in male rats exposed to 30 or 100 ppm EGME. Treatment-related pathologic alterations were observed only in male rats at the 300 ppm level and included decreased testicular size and atrophic seminiferous tubules. Female rats tolerated up to 300 ppm EGME without any adverse reproductive effects. Based on these results, it was concluded that the no-adverse effect level of EGME for fertility and reproduction was 100 ppm in rats.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Availability: Fundamental and Applied Toxicology, 3: 80-85, 1963.

Subject Keywords:

Page Count: 82

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-066615

Site Holding: CB

AD Number:

Title: Inhalation Toxicity of Butylene Oxide.

Author(s): Miller, R. R. Quast, J. F. Ayres, J. A. McKenna, M. J.

Report Number:

Publish Date: 19810701

Abstract: Exposure of male and female Fischer 344 rats and B6C3F1 mice to 0,400,800 or 1600 ppm butylene oxide vapors 6 hours per day, 5 days per week, for a total of 9 days during a 2-week interval revealed a definite species difference in sensitivity to these high concentrations of the test material. All mice in the 1600 ppm group

were dead prior to the 3rd day of exposure while all rats exposed to 1600 ppm survived until scheduled sacrifice with no obvious signs of distress except for a pronounced retardation of growth. Inflammatory and degenerative changes in the nasal mucosa were detected histopathologically in rats in the 1600 ppm group. Myeloid hyperplasia in the bone marrow, and elevated mean white blood cell counts for male and female rats in the 1600 ppm group may possibly have been related to the inflammatory nasal lesions or to generalized stress. A subchronic inhalation toxicity study in which Fischer 344 rats and B6C3F1 mice were exposed to 0,75,150 or 600 ppm for 13-weeks resulted in no treatment-related mortalities. Slight growth retardation, particularly for female rats and mice, was apparent for animals in the 600 ppm group. Histopathologic examinations revealed treatment-related lesions of the nasal mucosa in both rats and mice in the 600 ppm group. There were no histopathologic observations in rats or mice in the 75 or 150 ppm groups which were considered to be related to exposure to the test material.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: Fundamental and Applied Toxicology, 1(7-8): 319-324, July-August 1981.

Subject Keywords:

Page Count: 6

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-066728

Site Holding: CB

AD Number:

Title: The Pharmacokinetics and Macromolecular Interactions of Trichloroethylene in Mice and Rats.

Author(s): Stott, W. T. Quast, J. F. Watanabe, P. G.

Report Number:

Publish Date: 19810918

Abstract: Male B6C3F1 mice metabolized inhaled trichloroethylene (TRI) (600 ppm/6 hr) to a greater extent (262 percent more) than male Osborne-Mendel rats. Mice metabolized more (332 percent) inhaled TRI to a hepatic macromolecular binding metabolite in vivo than rats. Oral administrations of TRI resulted in treatment-related hepatocellular cytotoxicity in repeated dosing trials in the mouse. Hepatic effects observed in mice treated with a maximum tolerated dose of 2400 mg/kg/day TRI for 3 days were primarily centrilobular hepatocellular swelling with focal hepatocellular necrosis. These effects lead to an enhanced regenerative process as indicated by increased hepatic DNA synthesis activity (220 percent of control) and incidence of mitotic figures. Treatment of mice (po) with TRI for a 3-week period (5 days/week) resulted in a dose-related increase in hepatocellular swelling with giant and mineralized cells present in the 2400 mg/kg/day dosed animals. Contrasting the mouse data, rats appeared to be less sensitive to a maximum tolerated dose level of TRI, displaying enhanced hepatic DNA synthesis levels (175 percent of control) but no histopathology after a similar 3-week treatment with 1100 mg/kg/day TRI. Renal tissue in both species was not significantly affected by TRI. An estimate of the extent of TRI interaction with DNA was also determined by measuring the radioactivity associated with purified hepatic DNA. Only a very low level of in vivo TRI-DNA interaction was observed in mice given 1200 mg/kg TRI po which is reportedly tumorigenic upon chronic administration (maximum estimate = 0.62 +/- 0.43 alkylation 10(6) nucleotides). When coupled with the very weak or negative responses of pure TRI in in vitro mutagenesis assays, the DNA alkylation data indicate a lack of genotoxic potential. These data in toto suggest an epigenetic mechanism of tumor formation in the B6C3F1 mouse, implying that a tumorigenic response to TRI exposure in these animals would only be evident upon chronic administration of high, cytotoxic dose levels of TRI.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: Toxicology and Applied Pharmacology, 62(1): 137-151, January 1982.

Subject Keywords:

Page Count: 15

CB Collection: UA

Media Type: PDF

Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-066730

Site Holding: CB

AD Number:

Title: Toxicologic and Reproductive Effects of Inhaled 1,2-dibromo-3-chloropropane in Rats.

Author(s): Rao, K. S. Burek, J. D. Murray, F. J. John, J. A. Schwetz, B. A. Bell, T. J. Potts, W. J. Parker, C. M.

Report Number:

Publish Date: 19830401

Abstract: Groups of 30 male and 30 female Sprague-Dawley rats were exposed by inhalation to 0,0.1,1.0 or 10 ppm of 1,2-dibromo-3-chloropropane(DBCP) vapor for 6 hr/day, 5 days/week for 14 weeks followed by recovery periods of up to 32 weeks. The fertility of male rats was evaluated by mating trials with unexposed females. The exposed female rats were mated to unexposed male rats at the end of the 14-week exposure period and again during post-treatment and were allowed to deliver. Five rats/sex/exposure level were killed after 4 weeks and after 14 weeks of exposure; remaining rats were sacrificed at the end of the recovery period. DBCP did not affect the ability of males to impregnate females; however, a dominant lethal effect was evident at 10 ppm which tended to reverse by 5 weeks after termination of exposure. Moderate testicular atrophy (males) and focal aggregates of altered cells in the adrenal cortex (males and females) were observed in rats sacrificed immediately after exposure to 10 ppm for 14 weeks, but not in those exposed to 1.0 or 0.1 ppm. Pathologic evaluation of the rats from the recovery portion of the study showed treatment-related alterations in males and females in the 10 and 1.0 ppm exposure groups, but not in the groups exposed to 0.1 ppm. The testicular alterations that were present in the 10 ppm males after the 14-week exposure period were tending to reverse by the end of the recovery period. Lesions were observed in the adrenal cortex of recovery males and females from the 10 ppm exposure level: females exposed to 1 ppm had slight adrenal cortical lesions at the end of the recovery period. In addition, increased numbers of ovarian cysts were present in recovery females from the 10 ppm exposure level. Brain effects consisting of focal or multifocal mineralized deposits were present in males and females in the 10 ppm exposure level. No treatment-related alterations were recognized in any of the rats from the 0.1 ppm recovery groups.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: Fundamental and Applied Toxicology, 3(2): 104-110, April 1983.

Subject Keywords:

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-066968

Site Holding: CB

AD Number:

Title: [¹⁴C]Methyl Chloroform (1,1,1-Trichloroethane): Pharmacokinetics in Rats and Mice following Inhalation Exposure.

Author(s): Schumann, A. M. Fox, T. R. Watanabe, P. G.

Report Number:

Publish Date: 19820101

Abstract: Studies on the pharmacokinetics of [¹⁴C]methyl chloroform (1,1,1-trichloroethane) in male Fischer 344 rats and B6C3F1 mice were undertaken to characterize the disposition of the inhaled chemical over a wide range of exposure concentrations. The animals were exposed to 150 or 1500 ppm of [¹⁴C]methyl chloroform vapor for 6 hr and the elimination of ¹⁴C activity was followed for 72 hr. Following exposure to either concentration of methyl chloroform, both species excreted >96 percent of the total recovered radioactivity during the first 24 hr. The major route of elimination of methyl chloroform was via exhalation of unchanged chemical in the expired air which constituted approximately 94-98 percent of the total recovered radioactivity in rats and 87-97 percent in mice at 150 and 1500 ppm, respectively. Mice were found to eliminate methyl chloroform in the expired air more rapidly than

did rats. The remaining radioactivity (approximately, 2-13 percent) was detected as metabolized methyl chloroform in the expired air ($^{14}\text{CO}_2$) and as a nonvolatile radioactivity in the urine, feces, carcass, and cage wash. Although mice were found to metabolize two to three times more methyl chloroform on a body weight basis, the biotransformation of methyl chloroform was shown to be a saturable, dose-dependent process in both species. Since the biotransformation of methyl chloroform occurred to such a limited extent, saturation of its metabolism did not impact markedly on the distribution or elimination of the parent chemical. The body burden, end-exposure blood level, and tissue concentration of methyl chloroform were found overall to increase in direct proportion with the exposure concentration. [^{14}C]Methyl chloroform was more concentrated in the fat of both species than in the liver or kidneys immediately after exposure. However it was rapidly cleared from the fat so that by 24 hr <2 percent of the initial radioactivity remained. Thus, methyl chloroform shows little potential for significant bioaccumulation in rodents.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI TOXICOLOGY AND ENVIRONMENTAL RESEARCH

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: Toxicology and Applied Pharmacology, 62: 390-401, 1982.

Subject Keywords:

Page Count: 12

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-067506

Site Holding: CB

AD Number:

Title: Pharmacokinetics and Macromolecular Interactions of Ethylene Dichloride in Rats after Inhalation or Gavage.

Author(s): Reitz, Richard H. Fox, Tony R. Ramsey, John C. Quast, John F. Langvardt, Patrick W. Watanabe, Philip G.

Report Number:

Publish Date: 19820201

Abstract: Ethylene dichloride (EDC) induces tumors in rats and mice when administered chronically by gavage. However, chronic inhalation of EDC vapor failed to induce any treatment-related tumors. To help understand the consequences of environmental exposure to EDC by either route, [^{14}C]EDC was administered to male Osborne-Mendel rats by gavage (150 mg/kg in corn oil) or inhalation (150 ppm, 6 hr). EDC was extensively metabolized following either exposure. No significant differences were observed in the route of excretion of nonvolatile metabolites. In each case, 85 percent of the total metabolites appeared in the urine, with 7 to 8, 4, and 2 percent found in the CO_2 , carcass, and feces, respectively. The major urinary metabolites were thiodiacetic acid and thiodiacetic acid sulfoxide, suggesting a role for glutathione in biotransformation of EDC. Gross macromolecular binding (primarily protein binding) was studied after inhalation or gavage. No marked differences were noted between the two routes, or between "target" and "nontarget" tissues, after in vivo administration of EDC. Covalent alkylation of DNA by EDC was studied in *Salmonella typhimurium* and rats. DNA alkylation in *S. typhimurium* was directly related to the frequency of mutation in these bacteria. However, when DNA was purified from the organs of rats exposed in vivo to EDC, very little alkylation was observed after either gavage or inhalation (2 to 20 alkylations per million nucleotides). DNA alkylation after gavage was two to five times higher than after inhalation, but no marked differences were noted between target and nontarget organs. Pharmacokinetic studies indicated that peak blood levels of EDC were approximately five times higher after gavage than after inhalation. When pharmacokinetic data were modeled, it appeared that the elimination of EDC may become saturated when high blood levels are produced and that such saturation is more likely to occur when equivalent doses are administered by gavage versus inhalation. Since toxicity often occurs when the normal detoxification pathways are overwhelmed, this toxicity may represent the most reasonable explanation for the apparent differences between the two bioassays.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL U S A MIDLAND MI CONTRACTS PROJECTS LAB

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: Toxicology and Applied Pharmacology, 62(2): 190-204, February 1982.

Subject Keywords:
Page Count: 8
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAAC Number: CB-078630
Site Holding: CB EDG E505942
AD Number:
Title: Contract AF-08-635-6042. Monthly Letter Progress Report No. 15, 20 August-20 September 1967.
Author(s): Ruh, R. P.
Report Number: MLPR-15 WS-9M-67
Publish Date: 19671010
Abstract: This is the regular monthly letter progress report on work done under subject contract for the period August 20, 1967-September 20, 1967. This is the fifteenth such report, and is Dow Report WS-9M-67. Research on novel pyrotechnic smoke formulations based on boron oxide, silicon dioxide, and advanced oil formulations has been continued.
Descriptive Note: Monthly Letter Progress Report
Corp Author Name: DOW CHEMICAL CO MIDLAND MI
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 4
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAAC Number: CB-082063
Site Holding: CB EDG E488605
AD Number:
Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents. Bimonthly Progress Report, 14 March-14 May 1966.
Author(s): Penn, Mitchell
Report Number: PD-13-66
Publish Date: 19660601
Abstract: This report represents the work performed on this contract for the period 14 March-14 May 1966.
Descriptive Note: Bimonthly Progress Report
Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 26
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAAC Number: CB-082065
Site Holding: CB EDG E488606
AD Number:
Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents. Bimonthly Progress Report, 15 May-15 July 1966.
Author(s): Mitchell, Penn
Report Number: PD-14-66
Publish Date: 19660801

Abstract: This report represents the work performed on this contract for the period 15 May-15 July 1966.

Descriptive Note: Bimonthly Progress Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 12

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-082079

Site Holding: CB EDG E488607

AD Number:

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents. Bimonthly Progress Report, 15 July-15 September 1966.

Author(s): Penn, Mitchell

Report Number: PD-15-66

Publish Date: 19661001

Abstract: This report represents the work performed on this contract for the period 15 July-15 September 1966.

Descriptive Note: Bimonthly Progress Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 21

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-082081

Site Holding: CB EDG E488608

AD Number:

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents. Bimonthly Progress Report, 15 September-15 November 1966.

Author(s): Penn, Mitchell

Report Number: PD-16-66

Publish Date: 19661215

Abstract: This report represents the work performed on this contract for the period 15 September-15 November 1966.

Descriptive Note: Bimonthly Progress Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 16

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-082083

Site Holding: CB EDG E488609

AD Number:

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents. Bimonthly Progress Report, 15 November 1966-15 January 1967.

Author(s): Penn, Mitchell

Report Number: PD-17-67

Publish Date: 19670201

Abstract: This report represents the work performed on this contract for the period 15 November 1966-15 January 1967.

Descriptive Note: Bimonthly Progress Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 19

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-082086

Site Holding: CB EDG E488610

AD Number:

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents. Final Comprehensive Annual Report, 15 March 1966-15 March 1967.

Author(s): Penn, Mitchell Lane, George A.

Report Number: PD-18-67

Publish Date: 19670415

Abstract: This Final Comprehensive Annual Report represents the work performed in this contract for the period March 15, 1966-March 15, 1967, and is Dow Report No. PD-18-67.

Descriptive Note: Final Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 29

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-089745

Site Holding: CB

AD Number:

Title: Low Rate of Severe Injury from Dermal and Ocular Irritation Tests and the Validity of Using Fewer Animals.

Author(s): Berdasco, Nancy Anne M. Gilbert, Kimberly S. Lacher, Jane W. Mattsson, Joel L.

Report Number:

Publish Date: 19960101

Abstract: Current US and Japanese regulatory guidelines mandate the use of at least six animals for dermal and ocular irritation testing, while EEC/OECD guidelines require only three animals. An analysis of data from this laboratory in general supports the use of as few as three animals for acute irritancy testing. Data from a series of 140 dermal and 118 ocular irritation tests were examined to determine injury rates associated with testing, and to generate six-, five-, four-, three-, and two-rabbit primary dermal irritation indices for dermal tests and to categorize ocular tests similarly. Results were then examined to determine whether fewer animals could have been used to obtain findings similar to those originally noted with six rabbits. These results suggest that the number of animals used in dermal and ocular irritation testing can be reduced, especially if a sequential approach involving a preliminary in vitro/SAR test is taken. In addition, low rates of severe injury were evident for dermal and ocular irritation tests, as well as low discomfort rates for ocular irritation tests using a topical anesthetic. Using a low level of dermal irritation as a screen for ocular testing could reduce injury and discomfort rates further.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited. Copyrighted Material. Availability: American College of Toxicology, 15(3): 177-193, 1996.

Subject Keywords: ANIMAL WELFARE; IRRITATION TESTS; RABBITS; REPRODUCIBILITY; TOXICITY; TOXICITY METHODS

Page Count: 17

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-093871

Site Holding: CB EDG E480481

AD Number:

Title: The Toxicity of Chlorinated Diphenyleneoxides: Dichlorodiphenyleneoxide, Hexachlorodiphenyleneoxide, Octochlorodiphenyleneoxide. Technical Report, 24 June 1938-19 January 1944.

Author(s): Adams, E. M.

Report Number: T36-7-3-1

Publish Date: 19440805

Abstract: The samples of chlorinated diphenyleneoxides were obtained from W. C. Stoesser, who had produced them in the laboratory. Dr. Stoesser was supposed to have been affected by these compounds, during the distillation, and a comparison with the diphenyloxides was desired.

Descriptive Note: Technical Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 13

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-097926

Site Holding: CB

AD Number:

Title: Material Safety Data Sheet. Dow Chemical Company, 2,3-Dichloropropene.

Author(s):

Report Number:

Publish Date: 19960318

Abstract: This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

Descriptive Note: Material Safety Data Sheet

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: 000078-88-6; APPEARANCE; BOILING POINT; CAS NUMBERS; DISPOSAL METHODS; EXPLOSION HAZARD; EXTINGUISHING MEDIA; EYE IRRITATION; FIRE FIGHTING EQUIPMENT; FIRST AID MEASURES; FLAMMABILITY; FLASH POINT; INGESTION; INHALATION; MUTAGENIC EFFECTS; ODOR; PHYSICAL PROPERTIES; REACTIVITY; RESPIRATORY PROTECTION; ROUTE OF EXPOSURE; SKIN ABSORPTION; SKIN CONTACT; SKIN IRRITATION; SOLUBILITY; SPECIFIC GRAVITY; SPILL/LEAK INFORMATION; STABILITY; VAPOR DENSITY; VAPOR PRESSURE

Page Count: 5

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-107017

Site Holding: CB

AD Number:

Title: Decontamination of Toxic Chemical Agents.

Author(s): Chromecek, Richard C. McMahon, John C. Sojka, Milan F.

Report Number: PAT-APPL-548526 PATENT-5126309

Publish Date: 19920630

Abstract: A process of decontaminating a surface contaminated with a toxic chemical agent in which there is applied to the contaminated surface, a macroporous cross-linked hydrophobic copolymer containing an agent which is a decontaminant for the toxic chemical agent present on the surface. The decontaminant can be a chemical neutralizer such as sodium hydroxide; lithium hydroxide; concentrated bleach; and mixtures of diethylene triamine, 2-methoxy ethanol, and sodium hydroxide, for example.

Descriptive Note: United States Patent

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords:

Page Count: 14

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-135048

Site Holding: CB DT DW

AD Number: 825229

Title: Formulation and Evaluation of Defoliants Containing DNBP.

Author(s): Barrons, Keith C. Rosenfield, Christine C. Holmsen, Theodore W. Axelson, Robert J.

Report Number:

Publish Date: 19671101

Abstract: The two-fold limitation of the contact herbicide DNBP as a component of conventional formulations of defoliant sprays was confirmed. They are: (1) negligible translocation of DNBP itself, and (2) its inhibitory effect on translocation of growth regulator herbicides. Solvent-surfactant systems were developed which provide for optimum kill from DNBP when employed in non-aqueous medium volume sprays and at the same time permit maximum translocation of growth regulators. These systems were found to partially over-come the two limitations, however, contract termination prevented final quantitative evaluation. 2, 4, 5-T and 4-amino-3, 5, 6-trichloro-2-picolinic acid were found to be less inhibited by DNBP than was 2, 4-D. A unique delayed-action DNBP formulation was developed which preliminary lab work showed promising as a means of imparting leaf kill without inhibition of growth regulator effects. Suggestions are made for further research aimed at optimization of this type of formulation and its further evaluation.

Descriptive Note: Final Report, May-Nov 67

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH AGRICULTURAL PRODUCTS DEPT

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; No Foreign. Other request for this document shall be referred to Commanding Officer, Fort Detrick, Attn: Technical Releases Section, Technical Information Division, Frederick, MD 21701. This document contains export-controlled technical data.

Subject Keywords: ACETIC ACID; DEFOLIANTS; GROWTH SUBSTANCES; HERBICIDES; NITROPHENOLS; PERFORMANCE (ENGINEERING); PREPARATION; SURFACE ACTIVE SUBSTANCES

Page Count: 41

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-136829

Site Holding: CB DT DW 511348

AD Number: 854127

Title: Techniques in Smoke Application. Final Report, 20 June 1966-31 December 1967.

Author(s): Lane, George A. Jankowiak, E. M. Smith, W. A.

Report Number: WS-1-68 AFATL-TR-68-42

Publish Date: 19680301

Abstract: Exploratory studies have been conducted on techniques in smoke application. A chamber has been constructed for evaluating screening smokes by both a visual target technique and a light attenuation technique. Using TiCl₄ (FM) smoke agent, nearly exact agreement in total obscuring power (TOP) values between the two techniques has been obtained. Relative humidity was found to have a pronounced effect on the obscuring power of nearly all the smoke agents investigated. Chemical smokes consisting of boron oxide, boron nitride, silicon dioxide, and pyrotechnic oil fogs were studied. Boron oxide smoke generated from boron -- lithium perchlorate mixtures is superior in TOP to the FM standard. A satisfactory boron nitride smoke could be generated from the mixtures investigated. The best silicon dioxide smoke was generated from a silicon -- lithium perchlorate composition. This smoke, which contains substantial amounts of lithium chloride, is high in TOP. Pyrotechnic oil fogs are superior in TOP to FM below 50 percent relative humidity, but inferior under more humid conditions. They are promising because of low cost and simplified processing.

Descriptive Note: Final Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords:

Page Count: 64

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-137765

Site Holding: DT DW

AD Number: 837998

Title: Formulation and Testing of Broad Spectrum Herbicide Pellets.

Author(s): Swezey, Arthur W. VanHorn, Roy L. Hunter, Robert C.

Report Number:

Publish Date: 19680701

Abstract: Work in Phase I involved preparation and application of several herbicide combinations as pellets by small-plot field research technique on a range of grass and broadleaved weed and brush species. The objective was to determine proper herbicide combinations, proportions and dosage range most effective in residual control of grasses, herbaceous weed and brush. Experiments were carried out in Puerto Rico and Mississippi.

Descriptive Note: Semiannual Report No. 2, Feb-Jul 68

Corp Author Name: DOW CHEMICAL CO MIDLAND MI AGRICULTURAL PRODUCTS DEPT

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; No foreign without approval. Other requests for this document shall be referred to Commanding Officer, Fort Detrick, Attn: Technical Releases Branch, Frederick, MD 21701. This document contains export-controlled technical data.

Subject Keywords: BRUSH (BOTANY); CONTROL SYSTEMS; DOSAGE; GRASSES; HERBICIDES; MISSISSIPPI; PELLETS; PLANTS (BOTANY); PREPARATION; PUERTO RICO; STATISTICAL DATA; SYNTHESIS (CHEMISTRY); TABLES (DATA); TEST METHODS; WEED CONTROL

Page Count: 46

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-137932

Site Holding: CB DT DW

AD Number: 832337

Title: Formulation and Testing of Broad Spectrum Herbicide Pellets.

Author(s): Swezey, Arthur W. VanHorn, Roy L.

Report Number:**Publish Date:** 19680201

Abstract: The work in Phase I involved the preparation and application of several herbicide combinations as pellets by small-plot field research techniques on a range of grass and broadleaved weed and brush species. The objective was to determine proper herbicide combinations, proportions and dosage range most effective in giving residual control of grasses, herbaceous weeds and brush. Experiments were carried out in Puerto Rico and Mississippi. The data to date indicate that picloram (TORDON), bromacil (HYVAR X), pyriclor (DAXTRON), and terbacil (SINBAR) show the most promise, with the top candidate being a combination of TORDON AND HYVAR X. This combination at 30-50 pounds per acre of total toxicant has controlled grassy and broadleaved weeds for six months in Puerto Rico under a rainfall regimen of 83 inches in 1967. Work on Phase I still is in progress and more experiments are planned. It is expected that decisions regarding Phase II (air applications) can be made in early summer, 1968.

Descriptive Note: Report No. 1, Jul 67-Jan 68**Corp Author Name:** DOW CHEMICAL CO MIDLAND MICH AGRICULTURAL PRODUCTS DEPT**Distribution Statement:** Distribution limited to US Gov't agencies and their contractors; No Foreign. Other requests for this document shall be referred to Department of the Army, Attn: SMUFD-AE-T, Fort Detrick, Frederick, MD 21701. This document contains export-controlled technical data.**Subject Keywords:** CONTROL; DOSAGE; EFFECTIVENESS; ENVIRONMENTAL TESTS; GRASSES; HANDLING; HERBICIDES; MISSISSIPPI; MIXTURES; PELLETS; PREPARATION; PUERTO RICO; RAINFALL; SITE SELECTION; STABILITY; TOXICITY**Page Count:** 43**CB Collection:** UA**Media Type:** PDF**Document Classification:** U**Supplemental Notes:****CBRNIAAC Number:** CB-140764**Site Holding:** DT DW**AD Number:** 847888**Title:** Formulation and Testing of Broad Spectrum Herbicide Pellets.**Author(s):** Swezey, Arthur W. VanHorn, Roy L.**Report Number:****Publish Date:** 19690101

Abstract: Activities during the period July 1, 1968, to early January, 1969, involved further readings on plots put out earlier, particularly those established in Puerto Rico in the spring of 1968. During the late summer, larger quantities of pellets were manufactured using commercial scale equipment. These materials were then applied in Puerto Rico in the late fall.

Descriptive Note: Semiannual Report No. 3, Jul 1968-Jan 1969**Corp Author Name:** DOW CHEMICAL CO MIDLAND MI AGRICULTURAL PRODUCTS DEPT**Distribution Statement:** Distribution limited to US Gov't agencies and their contractors; No foreign without approval. Other requests for this document shall be referred to Commanding Officer, Fort Detrick, Attn: SMUFD-AE-T, Frederick, MD 21701. This document contains export-controlled technical data.**Subject Keywords:** BRUSH (BOTANY); CONTROL; DEFOLIANTS; DOSAGE; GRASSES; HERBICIDES; MISSISSIPPI; PELLETS; PLANTS (BOTANY); PUERTO RICO; TABLES (DATA); TANDEX; TEST METHODS; TORDON; WEED CONTROL**Page Count:** 32**CB Collection:****Media Type:****Document Classification:** U**Supplemental Notes:** See also Semiannual Report No. 2, AD-837998.**CBRNIAAC Number:** CB-142281**Site Holding:** CB DT DW 549836**AD Number:** 507727**Title:** Thermal Dissemination of Chemical Agents.

Author(s): Lane, George A. Flynn, James P.

Report Number: DOW-PD-14-69

Publish Date: 19691201

Abstract: This report describes experimental work done during the last 4 and one half months of this Contract. Experimental work centered on four promising polymer bonded systems for EA 3834A dissemination. Of the four systems, one utilizing a polysulfide resin and a trifunctional aziridine as a fuel-binder is recommended. Preliminary results on a new binder system consisting of a sulfur-containing epoxy resin and a trifunctional thiol were encouraging; physical and combustion properties were good and agent yields satisfactory.

Descriptive Note: Final Comprehensive Report, Jun-Oct 1969

Corp Author Name: DOW CHEMICAL CO MIDLAND MI PRODUCT DEPT LABS

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; No foreign without approval. Other requests for this document shall be referred to Commanding Officer, Army Edgewood Arsenal, Attn: SMUEA-TSTI-T, Edgewood Arsenal, MD 21010. This document contains export-controlled technical data.

Subject Keywords: AEROSOLS; B AGENT 2; BINDERS; CANISTERS; CHEMICAL WARFARE AGENTS; E49 CANISTERS; EA AGENT 3834; EA AGENT 3834A; ESTERS; FUELS; GLYCOLIC ACID; INCAPACITATING AGENTS; POLYMERS; POLYSULFIDE RESINS; PYROTECHNICS; SALTS

Page Count: 23

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-143040

Site Holding: DT DW

AD Number: 877242

Title: Formulation and Testing of Broad Spectrum Herbicide Pellets.

Author(s): Swezey, Arthur W. Paez, Juan A. Van Horn, Roy L. Hunter, Robert C. Wasco, Joseph L.

Report Number:

Publish Date: 19701001

Abstract: A three-year study was conducted involving a formulation and field evaluation aimed at identifying the best herbicide or combination of herbicides in pellet form for broad spectrum complete vegetation control in the tropics. Among the commercially available compound employed giving control of established grasses, Hyvar X (bromacil) and Tandex gave the most complete and the longest lasting control. Both contributed considerably to control of non-grass herbaceous and woody species. However, the spectrum was broadened and more complete vegetation control was obtained when Tordon (picloram) was applied in mixture with Hyvar X or Tandex. A dosage of 30 lb/A of Hyvar X or Tandex plus 5 lb/A of Tordon was required for long lasting and relatively complete vegetation control. Pellet formulations containing as high as two thirds total active ingredient were found feasible.

Descriptive Note: Final Report, Jul 1967-Jun 1970

Corp Author Name: DOW CHEMICAL CO MIDLAND MI AGRICULTURAL PRODUCTS DEPT

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; No foreign without approval. Other requests for this document shall be referred to Commanding Officer, Fort Detrick, Attn: Technical Releases Branch, Frederick, MD 21701. This document contains export-controlled technical data.

Subject Keywords: BROMACIL (HYVAR X); BROMACIL HERBICIDE; BROMINE ALIPHATIC COMPOUNDS; CARBAMATE/DIMETHYLUREIDO-M-PHENYL-T-BUTYL; CARBAMATES; CARBAMIC ACID; GRASSES; HALOGENATED HYDROCARBONS; HERBICIDES; HYVAR X (BROMACIL); HYVAR X HERBICIDE; ISOCIL; PICLORAM; PICLORAM (TORDON); PICOLINIC ACID/4-AMINO-3-5-6-TRICHLORO; TANDEX; TANDEX (CARBAMATE/DIMETHYLUREIDO-M-PHENYL-T-BUTYL); TEST METHODS; TORDON; TORDON HERBICIDES; TROPICAL TESTS; URACIL/5-BROMO-3-BUTYL-6-METH

Page Count: 15

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-167574

Site Holding: CB

AD Number:

Title: Method for Removing Chloropicrin From an Aqueous Medium.

Author(s): Orvik, Jon A.

Report Number: PAT-APPL-073778 PATENT-4257899

Publish Date: 19810324

Abstract: A method for destroying chloropicrin in an aqueous medium contaminated with chloropicrin which comprises contacting the aqueous medium with a sufficient amount of an alkali metal sulfite for a sufficient period of time to convert the chloropicrin to an alkali metal chloride and to nitromethane disulfonic acid or a salt thereof, whereby the aqueous medium is rendered substantially free of chloropicrin.

Descriptive Note: United States Patent

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords:

Page Count: 3

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-181411

Site Holding: CB EDG E490925

AD Number:

Title: Contract DAAA15-67-C-0498, Covering the Period of 8 June-8 August 1967.

Author(s): Ruh, R. P.

Report Number: PD-1-67

Publish Date: 19670826

Abstract: This is the first regular bimonthly letter progress report under subject contract and covers the period 8 June-8 August 1967.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 6

CB Collection: CA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-181413

Site Holding: CB EDG E490926

AD Number:

Title: Contract DAAA15-67-C-0498, Covering the Period of August 8-October 8, 1967.

Author(s): Ruh, R. P.

Report Number: PD-2-67

Publish Date: 19671024

Abstract: This is the second regular bimonthly letter progress report under subject contract and covers the period August 8-October 8, 1967.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 11

CB Collection: UA

Media Type: PDF

Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-181417

Site Holding: CB EDG E490927

AD Number:

Title: Contract DAAA15-67-C-0498, Covering the Period of 8 October-8 December 1967.

Author(s): Rasch, D. A.

Report Number:

Publish Date: 19671219

Abstract: This is the third regular bimonthly letter progress report under subject contract and covers the period 8 October - 8 December, 1967.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 7

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-181431

Site Holding: CB EDG E490928

AD Number:

Title: Contract DAAA15-67-C-0498, Covering the Period of 8 December 1967 - 8 February 1968.

Author(s): Rausch, D. A.

Report Number: PD-4-68

Publish Date: 19680301

Abstract: This is the fourth regular bimonthly letter progress report under subject contract and covers the period 8 December 1967 - 8 February 1968. This report describes the progress in and experimental program to develop pyrotechnic formulations to disseminate EA-3580 and BZ.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 8

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-181432

Site Holding: CB EDG E490929

AD Number:

Title: Contract DAAA15-67-C-0498, Covering the Period of 8 February - 8 April 1968.

Author(s): Rausch, D. A.

Report Number: PD-5-68

Publish Date: 19680422

Abstract: This is the fifth regular bimonthly letter progress report under subject contract and covers the period 8 February - 8 April 1968. This report describes results of an experimental program to develop pyrotechnic formulation to disseminate chemical warfare agents.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:
Page Count: 7
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-181433
Site Holding: CB EDG E490930
AD Number:
Title: Contract DAAA15-67-C-0498, Covering the Period of 8 June - 8 August 1968.
Author(s): Safranski, J. C.
Report Number: PD-7-68
Publish Date: 19680820
Abstract: This is the seventh regular bimonthly letter progress report under subject contract and covers the period 8 June - 8 August 1968. A summary report is given on the status of up to date information on three promising candidate formulations.
Descriptive Note: BiMonthly Letter Report
Corp Author Name: DOW CHEMICAL CO MIDLAND MI
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 7
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-181434
Site Holding: CB EDG E490931
AD Number:
Title: Contract DAAA15-67-C-0498, Covering the Period of 8 August - 8 October 1968.
Author(s): Safranski, J. C.
Report Number: PD-8-68
Publish Date: 19681014
Abstract: This is the eighth regular bimonthly letter progress report under subject contract and covers the period 8 August - 8 October. This report gives experimental results from a renewed effort on the dissemination of Agent EA3580, following receipt of five pounds of the chloride salt. The work reported includes surveillance observations on pressed grain munitions, yield data on new systems, and preliminary results on the formate salt of EA3580.
Descriptive Note: BiMonthly Letter Report
Corp Author Name: DOW CHEMICAL CO MIDLAND MI
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 4
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-181436
Site Holding: CB EDG E490932
AD Number:
Title: Contract DAAA15-67-C-0498, Covering the Period of 8 October - 8 December 1968.
Author(s): Safranski, J. C.
Report Number: PD-9-68
Publish Date: 19681209

Abstract: This is the ninth regular bimonthly letter progress report under subject contract and covers the period 8 October - 8 December 1968. This report gives final surveillance results on EA-3580A and BZ munitions that have not been reported earlier.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 6

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-181437

Site Holding: CB EDG E490933

AD Number:

Title: Contract DAAA15-67-C-0498, Covering the Period of 8 December 1968 - 8 February 1969.

Author(s): Safranski, J. C.

Report Number: PD-10-69

Publish Date: 19690306

Abstract: This is the tenth regular bimonthly letter progress report under subject contract and covers the period 8 December 1968 - 8 February 1969. Major emphasis was placed on the dissemination of EA3834. Formulation work employed the agent in its free base and chloride salt forms in pressed grains and polymer bonded mixtures. A pressed grain mix using sucrose as fuel was optimized for the agent salt.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 7

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-181439

Site Holding: CB EDG E490934

AD Number:

Title: Contract DAAA15-67-C-0498, Covering the Period of 8 February 1969-8 April 1969.

Author(s): Safranski, J. C.

Report Number: PD-11-69

Publish Date: 19690416

Abstract: This is the eleventh regular bimonthly letter progress report under subject contract and covers the period 8 February 1969-8 April 1969. Experimental work during the reporting period was done solely on EA3834. Using a new analytical method recommended by Edgewood for this agent, munition formulations selected from earlier work were repeated and new data obtained.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 4

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-181449

Site Holding: CB EDG E490935

AD Number:

Title: Contract DAAA15-67-C-0498, covering the period of 8 June 1969 - 8 August 1969.

Author(s): Safranski, J. C.

Report Number: PD-13-69

Publish Date:

Abstract: This is the thirteenth regular bimonthly letter progress report under subject contract and covers the period 8 June 1969 - 8 August 1969. Emphasis was solely on four candidate polymer-bonded systems for dissemination the hydrochloride of EA3834. Surveillance data on a previously mentioned polymer-bonded formulation for BZ are also reported.

Descriptive Note: BiMonthly Letter Report

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 7

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-187436

Site Holding: CB DT

AD Number:

Title: New Concepts in Pyrotechnic Fuels for the Thermal Dissemination of Chemical Agents.

Author(s): Lane, Geroge A.

Report Number: PD-2-64

Publish Date: 19640701

Abstract: The testing chamber has been completed, and a program begun to test for leaks, determine the completeness of mixing, and check out all operations. Formulation studies were pursued in the areas of incremental improvements, nitrogen compounds, and polymer-bonded compositions. Research on incremental improvements emphasized the study of guanidinium carbonate as a coolant, research on thiourea-fueled systems, and exploratory work on guanidinium nitrate and nitroguanidine. Nitrogen chemistry has centered on PolytaZ and Malonitaz, but so far the only formulations which could be ignited have contained too much oxidizer, and burned too hot. Several binders have been studied for polymer-bonded castable systems: an epoxy-vinyl ester-styrene polymer, a disulfide epoxy, a bisphenol-A epoxy, a polyethylene grease, and several water-dispersible resins. Compatibility experiments showed reaction between CS and PolytaZ, Malonitaz, THA or TAZ at and below the 70 C. surveillance temperature. Promising compatibility data were obtained on the oxidizers RDX, guanidinium nitrate, and nitroguanidine. Mixtures of CS and guanidinium carbonate degrade rapidly at 70 C.

Descriptive Note: Bimonthly Progress Report, 13 Apr-13 Jun 64

Corp Author Name: DOW CHEMICAL CO MIDLAND MICH SCIENTIFIC PROJECTS LAB

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: AZIDES; BUTADIENES; CARBONATES; CASTABLE PROPELLANTS; CHEMICAL WARFARE AGENTS; CHLORATES; COLORED SMOKES; CS AGENTS; DISTRIBUTION; DYES; EPOXY RESINS; FUELS; GUANIDINE AZIDE/TRIAMINO; GUANIDINE CARBONATE; GUANIDINE NITRATE; GUANIDINE NITRATES; GUANIDINE/NITRO; GUANIDINES; IGNITION; IMPACT TESTS; OPTIMIZATION; PHENOLIC PLASTICS; PLASTIC BONDED EXPLOSIVES; POLYETHYLENE PLASTICS; POLYTAZ PROPELLANT; PYROTECHNICS; RDX; SOLID ROCKET PROPELLANTS; STOICHIOMETRY; STYRENE PLASTICS; STYRENE-BUTADIENE RUBBER; TAZ PROPELLANTS; THA PROPELLANT; THERMAL DISSEMINATION; THERMOSETTING PLASTICS; THIOUREA

Page Count: 58

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-193582

Site Holding: CB

AD Number:

Title: Infrared Spectroscopy.

Author(s): McKelvy, Marianne L. Britt, Thomas R. Davis, Bradley L. Gillie, Kevin J. Lentz, Alice L. Leugers, Anne Nyquist, Richard A. Putzig, Curtis L.

Report Number:

Publish Date: 19960101

Abstract: Infrared radiation is commonly defined as electromagnetic radiation with frequencies between 14 300 and 20 cm⁻¹ (0.7 and 500 m). When a normal molecular motion such as a vibration, rotation, rotation/vibration or lattice mode, or combination, difference, or overtone of these normal vibrations results in a change in the molecules dipole moment, a molecule absorbs infrared radiation in this region of the electromagnetic spectrum. The corresponding frequencies and intensities of these infrared bands, the infrared spectrum, may be used to characterize the material. Infrared spectral information may be used to identify the presence and amount of a particular compound in a mixture. Different classes of chemical compounds contain structural units that absorb infrared radiation at essential similar frequencies and intensities within that class of compound. These bands are called group frequencies. The infrared spectroscopist uses knowledge of these group frequencies to predict the structures of unknown molecules when standard infrared spectra are not available. Sample collection and presentation accessories exist which allow the analyst to collect spectra as solids, liquids, vapors, and in solution, at various temperatures, and while undergoing mechanical deformation. Experiments conducted under such conditions assist the spectroscopist in the determination of the structures of molecules in different phases as well as structure/ property relationships of materials. Modern instrumentation allows the collection of infrared spectra of materials at low-picogram levels. The ability of infrared spectroscopy to examine and identify materials under such a wide variety of conditions has earned this technique the premier position as the workhorse of analytical science.

Descriptive Note: Journal Article

Corp Author Name: DOW CHEMICAL CO MIDLAND MI

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