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Description of document: U.S. Army Dugway Proving Ground Technical Report
Bibliography for Corporate Author = General Mills, Inc.,
2010

Requested date: 2009

Released date: 26-January-2010

Posted date: 21-November-2016

Source of document: FOIA Request
DPG Legal Office
5450 Doolittle Avenue
Dugway, UT 84022-5002
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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_OR {dugway, deseret}) OR (REPORTNUM CONTAINS_OR {dpg*, wdtc*, dtc*}) AND (CORPAUTHOR CONTAINS_OR {general mills})

Execution Time: 0.000 seconds

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

CBRNIAC Number: CB-064634

Site Holding: CB DW 28552 EDG E504873

AD Number:

Title: An Airbourne Integrated Weapons System for Anti-Crop Warfare.

Author(s): Stern, Sidney C. Pohl, Russell A.

Report Number: GM-1784 DTC-72-1190 CDTL-28552

Publish Date: 19571015

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 1 Jan 1989. Other requests for this document shall be referred to Commander, US Army Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022-5000.

Subject Keywords:

Page Count: 126

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

Date: 20100125

Criteria: (CORPAUTHOR CONTAINS_OR {general mills})

Execution Time: 0.172 seconds

Your search yielded 150 records.

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CBRNIAC Number: CB-012752

Site Holding: CB DT DW 524191

AD Number: 333298

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 9.

Author(s):

Report Number:

Publish Date: 19621019

Abstract: (Abstract is unavailable.)

Descriptive Note: Quarterly Progress Report, 4 Jun-4 Sep 1962

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors. Other requests for this document shall be referred to Army Biological Laboratories, Fort Detrick, Frederick, MD.

Subject Keywords: AEROSOL DISPERSION; AEROSOL GENERATORS; AEROSOLS; ATOMIZATION; BACTERIAL AEROSOLS; BIOLOGICAL AGENTS; BIOLOGICAL WARFARE AGENTS; HUMIDITY; LIQUID; METEOROLOGICAL EFFECTS; SERRATIA; SHEAR PROPERTIES; SHEAR STRENGTH; SOLID; SPRAY TANKS; TALC; TENSILE PROPERTIES; TENSILE STRENGTH; WIND TUNNELS

Page Count: 115

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-022129

Site Holding: CB DT DW 562175 EDG E505613

AD Number: 337634

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 11.

Author(s): Whitnah, G. R.

Report Number: 2395

Publish Date: 19630504

Abstract: This Eleventh Quarterly Progress Report presents the results of work conducted at General Mills, Inc. under Contract DA-18-064-CML-2745, Dissemination of Solid and Liquid BW Agents during the period from December 4, 1962 to March 4, 1963. The results of the continuing studies of the mechanics of dry powders are presented. A study is reported, which shows that time under compaction has no effect on shear strength for periods as long as 70 hours. Compaction tests at low stress levels, which show promise of producing information on the strength of the agglomerates in a given powder, are discussed. Data are presented on compressive shear strength tests with prisms of compacted powders; the tests show anisotropy, with maximum strength in the direction of initial compaction. Results are given for experiments on gravity flow of dry powders in vertical tubes, and for fluidization of powders in the 1 to 5 micron size range. Progress is discussed in the application of a gas-absorption method determining total surface areas of powders; data are compared with results using Whitby size analyses. Both experimental and theoretical data resulting from the study of the effects of atmospheric humidity on stability of aerosols are presented. Experiments are described in which rotating cutters and high-velocity gas jets (separate experiments) are used to disaggregate and feed compacted dry powders. Results obtained during biological flight trials with the E-41 and E-42 spray tanks at Dugway Proving Ground are discussed. An average dissemination efficiency of 75.8 percent was obtained with the E-41. A description of the E-41 spray tank is provided. The description is accompanied by a general arrangement drawing and several photographs. Preliminary planning is reported for flight testing in the E-41 spray tank on the AO-1 'Mohawk' airplane (Grumman). A Report presenting the basic loads and stress analysis for the E-42 spray tank is included as Appendix B.

Descriptive Note: Quarterly Progress Report No. 11, 4 Dec 1962-4 Mar 1963
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Specific Authority; 4 May 1963. Other requests for this document shall be referred to US Army Biological Laboratories, Fort Detrick, MD.
Subject Keywords: ATOMIZATION; BIOLOGICAL WARFARE AGENTS; HUMIDITY; POWDERS; SCATTERING; SERRATIA; SPRAY TANKS; TALC; TENSILE PROPERTIES; WIND
Page Count: 213
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes: Eleventh Quarterly Progress Report on Dissemination of Solid and Liquid BW Agents. Prepared in cooperation with General Mills/ Aerospace Research.

CBRNIAC Number: CB-022557
Site Holding: CB DT DW 502160 DW 540527 EDG E505609
AD Number: 329067
Title: Dissemination of Solid and Liquid BW Agents. Quarterly Progress Report No. 6, 4 September-4 December 1961.
Author(s): Whitnah, G. R.
Report Number: QPR-6 GM-2264
Publish Date: 19620223
Abstract: (Abstract is unavailable.)
Descriptive Note: Quarterly Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only. Other requests for this document shall be referred to Army Biological Laboratories, Fort Detrick, Frederick, MD.
Subject Keywords: AEROSOL GENERATORS; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE AGENTS; COMMUNICABLE DISEASES; DESIGN; EXPERIMENTAL DATA; MATHEMATICAL ANALYSIS; MEASUREMENT; PARTICLES; SAMPLING; SCATTERING; SERRATIA; TC6350; TEMPERATURE; THEORY; VIABILITY
Page Count: 125
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-043982
Site Holding: CB DT DW 528673
AD Number: 429232
Title: Collective Protection for Combat Field Structures.
Author(s): Landsberg, M. I.
Report Number: 2507
Publish Date: 19640127
Abstract: New studies were initiated which included preliminary challenging of the collective protective kit for the tent GP medium using Sm at concentrations in the order of 10 to the 6th power to 10 to the 7th power; development of a sharp cut-off disseminator which produced particles with an NMD of approximately 1.1 microns; material durability determinations; adhesive performance; shock and vibration evaluation of the compression; and evaluation of the heating and cooling portion of the ECS package. The latter included, for efficiency tests, determination of power and air-flow patterns. Hardware components were also up-graded during this period, and feasibility models of the ECS package, including fresh-air purifier, heating and cooling units, and the recirculation systems, were fabricated. Also completed were air locks with improved attachment and valving systems and composite liners (polyurethane foam and butylcoated fabric) for the GP medium and large tents and for the command post tent.
Descriptive Note: Bimonthly Progress Report No. 3, 1 Nov-31 Dec 63
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.

Subject Keywords: ADHESIVES; AEROSOL GENERATORS; AEROSOLS; AIR CONDITIONING EQUIPMENT; BIOLOGICAL WARFARE; CHEMICAL WARFARE; COMPRESSIVE PROPERTIES; COOLING AND VENTILATING; COUNTERMEASURES; DACRON; DECONTAMINATION; DEGRADATION; EVAPORATORS; EXPANDED PLASTICS; FILTERS (FLUID); FLUID; G AGENTS; HANGARS; HEAT TRANSFER; HEATING; HELIUM; MUSTARD GAS; NYLON; PERMEABILITY; PLASTIC COATINGS; SHELTERS; TENSILE PROPERTIES; TENTS; TEXTILES; THERMAL INSULATION

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-044033

Site Holding: CB DT DW 48171

AD Number: 425914

Title: Collective Protection for Combat Field Structures. Bimonthly Progress Report No. 2, 1 September-31 October 1963.

Author(s): Landsberg, M. I.

Report Number: 2485

Publish Date: 19631127

Abstract: This is the second bimonthly progress report of work carried for the US Army Edgewood Arsenal and covers the period from 1 September to 31 October 1963. During this period most of the work reported in the first monthly status report was continued and amplified, some work was finished, and the solar heat load studies of tents and shelters and other studies were reported. Details of the research and development efforts will be found in a subsection of this report.

Descriptive Note: Bimonthly Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: AEROSOLS; AIR FILTERS; ANALYSIS; BIOLOGICAL WARFARE AGENTS; CHEMICAL WARFARE AGENTS; CONTROL SYSTEMS; COOLING AND VENTILATING EQUIPMENT; DECONTAMINATION; DESIGN; DOCUMENTS; ENVIRONMENTAL TESTS; HEAT TRANSFER COEFFICIENTS; MATERIALS; PENETRATION; PERT PROGRAM; POLYETHYLENE PLASTICS; POLYURETHANE RESINS; PROTECTIVE COVERING; PURIFICATION; SCATTERING; SHELTERS; SPRAYS; TENTS; TEST METHODS; VALVES; VENTILATION

Page Count: 111

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-044134

Site Holding: CB DT DW 48170

AD Number: 419056

Title: Collective Protection for Combat Field Structures. Bimonthly Progress Report No. 1, 1 July-31 August 1963.

Author(s): Landsberg, M. I.

Report Number:

Publish Date: 19630927

Abstract: The object of this contract is to develop a series of protective kits that can convert combat field structures to combat troop shelters and thus provide collective protection to the shelter's occupants when the outside environment is contaminated with chemical and biological agents. The program of work under the contract includes the feasibility design, development, fabrication, testing and redesign of the Chemical-biological (CB) protective kits required for this conversion, which will make use of both diffusive and mechanical methods of air filtration.

Descriptive Note: Bimonthly Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Administrative/Operational Use; 27 Sep 1963. Other requests for this document shall be referred to US Army Edgewood Arsenal, MD.

Subject Keywords: AEROSOLS; AIR; BIOLOGICAL WARFARE; CHEMICAL WARFARE; CLOTHING; CONTAMINA; CONTROL; COOLING; DECON; DESIGN; ENVIRONMENTAL TESTS; EXPERIMENTAL DATA; FEASIBILITY; HEATING; MATHEMATICAL ANALYSIS; PENETRATION; PRESSURE; PURIFICATION; SAMPLING; SHELTERS; TENTS; VENTILATION

Page Count: 91

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-045597

Site Holding: CB DT DW 524346 EDG E505616

AD Number: 348405

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 14.

Author(s): Whitnah, G. R.

Report Number:

Publish Date: 19640203

Abstract: (Abstract is unavailable.)

Descriptive Note: Quarterly Progress Report, 4 Sep-4 Dec 1963

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors. Other requests for this document shall be referred to Commanding Officer, US Army Biological Laboratories, Fort Detrick, MD.

Subject Keywords: ADSORPTION; AEROSOLS; ATOMIZATION; BIOLOGICAL WARFARE AGENTS; CONTROLLED ATMOSPHERES; ELECTRON MICROSCOPY; FLIGHT TESTING; HUMIDITY; LIQUIDS; PARTICLE SIZE; POWDERS; SCATTERING; SHEAR STRESSES; SOLIDS; STATISTICAL MECHANICS; TENSILE PROPERTIES; THEORY; VIABILITY

Page Count: 102

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-045658

Site Holding: CB DT EDG E505614

AD Number: 346751

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 12.

Author(s): Whitnah, G. R.

Report Number:

Publish Date: 19630710

Abstract: (Abstract is unavailable.)

Descriptive Note: Quarterly Progress Report, 4 Mar-4 Jun 1963

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors. Other requests for this document shall be referred to Commanding Officer, Army Biological Laboratories, Frederick, MD.

Subject Keywords: AEROSOLS; BIOLOGICAL WARFARE AGENTS; DESIGN; EGGS; ELECTROSTATIC FIELDS; FLIGHT TESTING; GAS FLOW; GRAPHITE; HUMIDITY; LIQUIDS; PARTICLE SIZE; POWDERS; SCATTERING; SERRATIA; SHEAR STRESSES; SIMULATION; SOLIDS; SPRAY TANKS; STORAGE; TENSILE PROPERTIES; VIABILITY; WIND TUNNELS

Page Count: 187

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAAC Number: CB-045659
Site Holding: CB DT EDG E505615
AD Number: 346750
Title: Dissemination of Solid and Liquid BW Agents. Quarterly Progress Report No. 13, 4 June-4 September 1962.
Author(s): Whitnah, G. R.
Report Number: QPR-2451
Publish Date: 19631024
Abstract: (Abstract is unavailable.)
Descriptive Note: Quarterly Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: AEROSOLS; BACILLUS SUBTILIS; BIOLOGICAL WARFARE AGENTS; EGGS; ELECTRON MICROSCOPES; ELECTROSTATIC FIELDS; EMBRYOS; FLIGHT TESTING; HUMIDITY; LIQUIDS; PARTICLE SIZE; POWDERS; SCATTERING; SERRATIA; SHEAR STRESSES; SOLIDS
Page Count: 114
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAAC Number: CB-045893
Site Holding: CB DT EDG E505612
AD Number: 337635
Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 10, 4 September-4 December 1962.
Author(s): Whitnah, G. R.
Report Number: QPR-2373
Publish Date: 19630204
Abstract: (Abstract is unavailable.)
Descriptive Note: Quarterly Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: AEROSOLS; BIOLOGICAL WARFARE; BIOLOGICAL WARFARE AGENTS; CHEMICAL PROPERTIES; COMPRESSIVE; DENSITY; FLIGHT TESTING; FLUORESCENCE; FOAM; LIQUIDS; MECHANICAL PROPERTIES; PARTICLE SIZE; PHOTOGRAPHS; PLASTICS; POWDERS; SCATTERING; SOLIDS; TENSILE PROPERTIES; TESTS; THEORY
Page Count: 252
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAAC Number: CB-046094
Site Holding: CB DT DW 508424 EDG E505611
AD Number: 332405
Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 8, 4 March-4 June 1962.
Author(s): Whitnah, G. R.
Report Number: ABL-2322
Publish Date: 19620801
Abstract: (Abstract is unavailable.)
Descriptive Note: Quarterly Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors. Other requests for this document shall be referred to Army Biological Laboratories, Fort Detrick, Frederick, MD.
Subject Keywords: AEROSOL GENERATORS; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE

AGENTS; DESIGN; SERRATIA; VIABILITY

Page Count: 230

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-046095

Site Holding: CB DT DW 508425 EDG E505610

AD Number: 332404

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 7, 4 December 1961-4 March 1962.

Author(s): Whitnah, G. R.

Report Number: ABL-2300

Publish Date: 19620622

Abstract: (Abstract is unavailable.)

Descriptive Note: Quarterly Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors. Other requests for this document shall be referred to Army Biological Laboratories, Fort Detrick, Frederick, MD.

Subject Keywords: AEROSOL GENERATORS; BACILLUS SUBTILIS; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE AGENTS; DESIGN; SERRATIA; VIABILITY

Page Count: 128

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-046320

Site Holding: CB DT DW 502159 EDG E505608

AD Number: 327072

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 5.

Author(s): Whitnah, G. R.

Report Number:

Publish Date: 19611101

Abstract: (Abstract is unavailable.)

Descriptive Note: Quarterly Progress Report No. 5, 4 Jun-4 Sep 1961

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Administrative/Operational Use; 30 Nov 1961. Other requests for this document shall be referred to Army Dugway Proving Ground, UT 84022.

Subject Keywords: AEROSOL GENERATORS; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE AGENTS; COMMUNICABLE DISEASES; DESIGN; EXPERIMENTAL DATA; MATHEMATICAL ANALYSIS; MEASUREMENT; PARTICLES; SAMPLING; SCATTERING; SERRATIA; THEORY

Page Count: 132

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-046439

Site Holding: CB DT DW 502161 EDG E505607

AD Number: 325247

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 4.

Author(s): Upton, J. E.

Report Number:**Publish Date:** 19610801**Abstract:** (Abstract is unavailable.)**Descriptive Note:** Technical Report**Corp Author Name:** GENERAL MILLS INC MINNEAPOLIS MN**Distribution Statement:** Distribution limited to US Gov't agencies and their contractors.**Subject Keywords:** AEROSOL GENERATORS; AEROSOLS; AIRBORNE; BACTERIA; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE; BIOLOGICAL WARFARE AGENTS; DOSAGE; EFFECTIVENESS; EGGS; EXHAUST GASES; EXPOSURE (PHYSIOLOGY); HIGH TEMPERATURE; JET AIRCRAFT; JET FLAMES; LIQUIDS; MATHEMATICAL ANALYSIS; PARTICLES; PHOTOGRAPHIC ANALYSIS; PHYSIOLOGY; POWDERS; PRESSURE; SCATTERING; SERRATIA; SOLIDS; STORAGE; TARGET DRONES; TEST EQUIPMENT; TEST FACILITIES; TEST METHODS; VIABILITY; WIND TUNNELS**Page Count:** 1**CB Collection:** CA**Media Type:** CPDF**Document Classification:** C**Supplemental Notes:****CBRNIAC Number:** CB-046471**Site Holding:** CB DT DW 502092 EDG E505620**AD Number:** 324746**Title:** Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No 1.**Author(s):** Whitnah, G. R.**Report Number:** TR-21**Publish Date:** 19601001

Abstract: This report covers the major areas of activity during the first three months of a program of research on dissemination of solid and liquid BW agents. The objective toward which the research is directed is the development of weapon systems for the dissemination of these agents as a line source from high speed low-flying aircraft. The problems of feeding and handling of finely divided solid agents are discussed along with applications of feeding devices such as screw feeders, piston feeders and pneumatic feeders. Progress in preparing for wind tunnel experiments on dissemination and deagglomeration is described and the considerations in the design of a special test section for these experiments are discussed. A description of an isokinetic sampling probe for use in the deagglomeration experiments is included. Progress on a study of the characteristics of finely divided materials is presented. This work includes literature search, theoretical analyses and experiments. A design study which has been initiated on an external aircraft store for liquid agent dissemination is discussed, preliminary findings of an operational analysis to determine optimum design flow rates for several agents are presented and a summary given of studies relating to specific aircraft store design problems.

Descriptive Note: Progress Report, 3 Jun-3 Sep 1960**Corp Author Name:** GENERAL MILLS INC MINNEAPOLIS MN**Distribution Statement:** Distribution limited to US Gov't agencies only; Test and Evaluation; 5 Oct 1981. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Document Review Board, Dugway, UT 84022.**Subject Keywords:** AEROSOL GENERATORS; AEROSOLS; AIRCRAFT PROTUBERANCES; AMMUNITION FEED MECHANISMS; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE; BIOLOGICAL WARFARE AGENTS; DESIGN; LIQUIDS; POWDERS; SCATTERING; SOLIDS; SUBSONIC FLOW; TESTS; WIND TUNNELS**Page Count:** 82**CB Collection:** CA**Media Type:** CPDF**Document Classification:** C**Supplemental Notes:****CBRNIAC Number:** CB-046547**Site Holding:** CB DT DW 502163 EDG E505605**AD Number:** 323599

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 2.

Author(s): Whitnah, G. R.

Report Number: 2161

Publish Date: 19610201

Abstract: (Abstract is unavailable.)

Descriptive Note: Quarterly Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: AERODYNAMIC CHARACTERISTICS; AEROSOL GENERATORS; AEROSOLS; AIRCRAFT PROTUBERANCES; AMMUNITION FEED MECHANISMS; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE; BIOLOGICAL WARFARE AGENTS; CARBON DIOXIDE; DATA; DESIGN; DRAG; EGGS; EROSION; JET AIRCRAFT; LIQUEFIED GASES; LIQUIDS; POWDERS; SCATTERING; SERRATIA; SOLIDS; STORAGE; SUBSONIC FLOW; TESTS; WIND TUNNELS

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-046548

Site Holding: CB DT DW 502162 EDG E505606

AD Number: 323598

Title: Dissemination of Solid and Liquid BW Agents, Quarterly Progress Report No. 3.

Author(s): Whitnah, G. R.

Report Number:

Publish Date: 19610501

Abstract: (Abstract is unavailable.)

Descriptive Note: Quarterly Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Subject Keywords: AERODYNAMIC CHARACTERISTICS; AEROSOL GENERATORS; AEROSOLS; AIRCRAFT PROTUBERANCES; BACTERIAL AEROSOLS; BIOLOGICAL WARFARE; BIOLOGICAL WARFARE AGENTS; DATA; DRAG; EGGS; EXHAUST GASES; JET AIRCRAFT; LIQUIDS; LOAD DISTRIBUTION; PHYSICAL PROPERTIES; POWDERS; SERRATIA; SOLIDS; STORAGE; SUBSONIC FLOW; TESTS; VIABILITY; WIND TUNNELS

Page Count: 1

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-047760

Site Holding: CB DT

AD Number: 281923

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Johnson, A. P. Leiter, G. G. Nash, J. H.

Report Number: 2315

Publish Date: 19620725

Abstract: An investigation was made of effects of surfaceactive agents and adsorbed foreign vapors on properties of fine organic powders. Twenty surface active agents representing the four main types (non-ionic, anionic, cationic and amphoteric) were tested to determine their effects on finely ground saccharin. Powder samples treated with various agents were tested for shear strength, dispersibility and electrostatic charge. The most significant finding was the fact that cationic agents definitely improve the dispersibility characteristics of saccharin. The effects of adsorbed phenol vapors on properties of three base powders (saccharin, carbowax 6000 and span 60) were investigated. Results indicated that adsorbed phenol vapors have no marked beneficial effects on powder properties.

A technique for standardizing the light source on the aerosol decay chamber is described. Particle size analyses using the whitby sedimentation centrifuge technique were made on samples of the original batch and the new batch of finely ground saccharin. (author)

Descriptive Note: Quarterly Progress Report No. 8, 3 Apr-3 July 62

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: ADDITIVES; ADHESION; ADSORPTION; AEROSOLS; CARBOHYDRATES; CHEMICAL WARFARE AGENTS; DIFFUSION; ELECTROSTATICS; IONIZATION; ORGANIC COMPOUNDS; PARTICLES; PHENOLS; POWDERS; SCATTERING; SHEAR STRESSES; SURFACE ACTIVE SUBSTANCES; SURFACE PROPERTIES; TENSILE PROPERTIES; VAPORS

Page Count: 37

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-048284

Site Holding: CB DT DW 503596

AD Number: 249913

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Nash, J. H. Leiter, G. T.

Report Number:

Publish Date: 19601231

Abstract: Several different types of tests, all of which deal with bulk powders rather than individual particles, were investigated during this report period. The powders used in most cases were finely ground saccharin and Carbowax 6000 and samples of these materials containing various deagglomerant agents. A technique for measuring the bulk tensile strength of powders at various degrees of compression is described. The technique makes it possible to determine the distribution of bulk tensile strength throughout the length of a column of compressed powder. The experimental results indicate that the bulk tensile strength is an exponential function of the distance from the piston to the rupture plane. Once the constants for a given powder have been determined, the bulk tensile strength of a thin layer of powder immediately below the piston (CO) can be determined. JO is the true bulk tensile strength of the powder at a given degree of compression. Measurements of this type were made using zinc cadmium sulfide, saccharin and Carbowax 6000. For a given compressive load, the bulk tensile strength of Carbowax 6000 was highest, saccharin next and zinc cadmium sulfide lowest. Disc lifting measurements (measurements whereby the force required to lift a disc out of a bed of powder is measured) were made at three widely different humidities on plain Carbowax 6000 and on Carbowax 6000 containing tri-calcium phosphate. It was found that the force is related to the disc diameter and powder depth in the following manner: $F = K d h (C)$. Both the multiplicative constant K and the exponent of the powder depth C are affected by changes in humidity, K being affected more strongly than C. In general, as the humidity decreased, greater and greater forces are required to lift the discs out of the powders. Measurements were made of shear strength and angle of repose using sampled of saccharin and Carbowax 6000 containing various deagglomerant agents. The technique for measuring shear involved measuring the tilt angle at which a roughened disc will slide over a thin layer of powder placed on a roughened tilting table. The technique for measuring angle of repose involved sifting powder through a funnel onto a flat horizontal surface and measuring the angle between the horizontal and the slanting surface of the powder pile. The results indicated that some of the additives increased and some decreased the shear strength and angle of repose of the base powders. The dispersibility of various powders was studied using a cubic meter aerosol chamber and bursting-diaphragm powder dispersing gun. An empirical equation of the following type depicts the manner in which an aerosol decays in the chamber: $A = A_0 e^{-\alpha T^{1/2}}$. It was found that the decay constant alpha followed nearly the same order as the shear strength and angle of repose for the same powders. An apparatus for analyzing the electric charge on air-borne particles is described.

Descriptive Note: Quarterly Progress Report No. 2, 3 Sep-3 Dec 1960

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Administrative/Operational Use; 31 Dec 1960. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center MD.

Subject Keywords: AEROSOLS; BIOLOGICAL WARFARE AGENTS; DIFFUSION; PARTICLES; POWDERS; SCATTERING; TESTS

Page Count: 50

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-048365

Site Holding: CB DT DW 506760

AD Number: 243607

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Nash, J. H. Zeller, H. W. M. Leiter, G. T.

Report Number: 2112

Publish Date: 19600926

Abstract: (Abstract is unavailable.)

Descriptive Note: Special Study

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; No Forn. This document contains export-controlled technical data.

Subject Keywords: AEROSOLS; BIOLOGICAL WARFARE AGENTS; FRICTION; PARTICLES; POWDERS; SCATTERING; SOLIDS; TENSILE PROPERTIES

Page Count: 36

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-048767

Site Holding: CB DT

AD Number: 222569

Title: Fine Grinding Study.

Author(s): Fitz, C. D. Gieger, J. W. Olson, R. K.

Report Number: 1640

Publish Date: 19561214

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; Dec 56. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center, MD.

Subject Keywords: AEROSOLS; ALKALOIDS; ATOMIZATION; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; MILLING MACHINES; OPERATION; PARTICLES; TEST METHODS; VIABILITY

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-048768

Site Holding: CB DT DW 505981

AD Number: 222568

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number:
Publish Date: 19530520
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: AEROSOLS; ATOMIZATION; BACTERIA; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; MEASUREMENT; MICROSCOPY; MILLING MACHINES; PARTICLES; TEST EQUIPMENT; TEST FACILITIES; VIABILITY
Page Count: 1
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-048769
Site Holding: CB DT DW 505982
AD Number: 222567
Title: Fine Grinding Project.
Author(s): Melton, D. F.
Report Number:
Publish Date: 19530624
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: AEROSOLS; ATOMIZATION; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; CENTRIFUGES; FILTERS (FLUID); FLUID; MEASUREMENT; MICROSCOPY; MILLING MACHINES; MOISTURE; PARTICLES; PLASTICS; TEST EQUIPMENT; TEST FACILITIES; VIABILITY
Page Count: 1
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-048770
Site Holding: CB DT
AD Number: 222566
Title: Fine Grinding Study.
Author(s): Fitz, C. D. Gieger, J. W. Olson, R. K.
Report Number:
Publish Date: 19561107
Abstract: (Abstract is unavailable.)
Descriptive Note: Bimonthly Report, 1 Aug-30 Sep 56
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; Nov 56. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center, MD.
Subject Keywords: AEROSOLS; ATOMIZATION; BACTERIA; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; MATHEMATICAL ANALYSIS; MILLING MACHINES; OPERATION; PARTICLE TRAJECTORIES; PARTICLES; PRESSURE; THEORY; VIABILITY
Page Count: 48
CB Collection: UA
Media Type: PDF

Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-048771
Site Holding: CB DT
AD Number: 222565
Title: Fine Grinding Study.
Author(s): Fitz, C. D. Geiger, J. W. Olson, R. K.
Report Number:
Publish Date: 19560913
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: AEROSOLS; ATOMIZATION; BACTERIA; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; DESIGN; GROWTH(PHYSIOLOGY); HAMMERS; MILLING MACHINES; OPERATION; PARTICLES; PHYSIOLOGY; SAFETY; TEST EQUIPMENT; TEST METHODS; VIABILITY
Page Count: 1
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-048772
Site Holding: CB DT
AD Number: 222564
Title: Fine Grinding Study.
Author(s): Fitz, C. D. Olson, R. K. Palm, J. D.
Report Number:
Publish Date: 19560510
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: AEROSOLS; ATOMIZATION; BACTERIA; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; DESIGN; IMPACT SHOCK; MEASUREMENT; MILLING MACHINES; OPERATION; PARTICLES; TEST EQUIPMENT
Page Count: 1
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-048773
Site Holding: CB DT DW 26378
AD Number: 222563
Title: Fine Grinding Study.
Author(s): Fitz, C. D. Olson, R. K. Palm, J. D.
Report Number:
Publish Date: 19560710
Abstract: Modification and preliminary evaluation of the Alpine impact mill are discussed. A high exhaust temperature was noted together with comparatively large product, particles, in the absence of an internal classifier. Four hammer shapes are under investigation with the Mikro-Atomizero Grinding studies, have been made on the Micronizer 404 fluid energy mill using various materials and over a range of inlet pressures. Influence of the "vortex

finder" on the grinding characteristics of this mill was also studied. The gravitational terminal velocity classifier and the 2-1/2 inch cyclone were given preliminary tests. Instrumentation requirements for a grinding system designed around the Micronizer 404 are analyzed. Viability assay control has been experimentally re-examined and discussed USDA (Peoria) and Fort Detrick scientists. Viability tests made on a single Sm lot by both the USDA and the GMI laboratories were comparable. Methods for grinding and classification of zinc cadmium sulfide were tested. The most feasible method for obtaining particles of this material in the one micron and smaller size appears to through the use of a liquid classification technique.

Descriptive Note: Bimonthly Progress Report, 1 Apr-31 May 56

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; Jul 56. Other requests shall be referred to Commanding Officer, Chemical Corps, Army Chemical Center, MD.

Subject Keywords: AEROSOLS; AIR CONDITIONING EQUIPMENT; ATOMIZATION; BACTERIA; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; CADMIUM COMPOUNDS; DESIGN; GRINDING; MEASUREMENT; MILLING MACHINES; OPERATION; PARTICLES; SULFIDES; TEST EQUIPMENT; TEST METHODS; VIABILITY; ZINC COMPOUNDS

Page Count: 40

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-048774

Site Holding: CB DT

AD Number: 222562

Title: Fine Grinding Study.

Author(s): Fitz, C. D. McGillicuddy, J. L.

Report Number:

Publish Date: 19560220

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: AEROSOLS; ANTIBIOTICS; ATOMIZATION; BACTERIA; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; DESIGN; FRACTURE (MECHANICS); MEASUREMENT; MECHANICS; MILLING MACHINES; PARTICLES; TEST EQUIPMENT

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-048775

Site Holding: CB DT DW 505983

AD Number: 222561

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number:

Publish Date: 19530724

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: AEROSOLS; ALKALOIDS; APPARATUS; ATOMIZATION; BACTERIAL AEROSOLS; BALL MILLS; BIOLOGICAL WARFARE AGENTS; CENTRIFUGES; DRIERS (APPARATUS);

MEASUREMENT; MICROSCOPY; MILLING MACHINES; MOISTURE; PARTICLES; TEST EQUIPMENT;
VIABILITY

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-048776

Site Holding: CB DT DW 505984

AD Number: 222560

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number:

Publish Date: 19530822

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: ANALYSIS; BACTERIAL AEROSOLS; FINE GRINDING PROJECT; MEASUREMENT;
PARTICLES; PHYSICAL PROPERTIES; PREPARATION

Page Count: 67

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-048777

Site Holding: CB DT DW 505985

AD Number: 222559

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number:

Publish Date: 19530923

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: ANALYSIS; BACTERIAL AEROSOLS; FINE GRINDING PROJECT; MEASUREMENT;
PARTICLES; PHYSICAL PROPERTIES; PREPARATION

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-048778

Site Holding: CB DT DW 505986

AD Number: 222558

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number:

Publish Date: 19531023

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: ANALYSIS; BACTERIAL AEROSOLS; FINE GRINDING PROJECT; MEASUREMENT; PARTICLES; PHYSICAL PROPERTIES; PREPARATION
Page Count: 1
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-048779
Site Holding: CB DT DW 505989
AD Number: 222557
Title: Fine Grinding Project.
Author(s): Melton, D. F.
Report Number:
Publish Date: 19531125
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: ANALYSIS; BACTERIAL AEROSOLS; FINE GRINDING PROJECT; MEASUREMENT; PARTICLES; PHYSICAL PROPERTIES; PREPARATION
Page Count: 1
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-049173
Site Holding: DT DW F00116
AD Number: 157224
Title: Fine Grinding Study.
Author(s): Nash, J. H. Olson, R. K. Baumstark, J. S.
Report Number:
Publish Date: 19571215
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: BACTERIAL AEROSOLS; HANDLING; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY
Page Count: 1
CB Collection:
Media Type:
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-049174
Site Holding: CB DT DW 29954
AD Number: 157223
Title: Fine Grinding Study.
Author(s): Baumstark, J. S. Nash, J. H. Olson, R. K.
Report Number:
Publish Date: 19580228

Abstract: This Final Report presents the results of research and development services conducted under Contract No. DA-18-064-404-CML-117 for Fort Detrick, Frederick, Maryland, during the period 30 November 1955 to 31 December 1957. The work during this period represents a continuation of a program which followed-through previous projects dating back to December of 1952. This program deals with size reduction, classification, collection and handling of dry biological materials. From the onset, the ultimate objective has been to develop equipment to be incorporated into a complete system for the size reduction of these biological materials to a product having a maximum percent according to mass in the 1 to 5 micron size range with a maximum viability recovery.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Subject Keywords: BACTERIAL AEROSOLS; HANDLING; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY

Page Count: 169

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-049437

Site Holding: CB DT DW 25066

AD Number: 142626

Title: Fine Grinding Study.

Author(s): Fitz, C. D. Gaalswyk, A. McGillicuddy, J. L. Olson, R. K. Palm, J. D.

Report Number:

Publish Date: 19551215

Abstract: This Final Report present the results of research and development services conducted under Contract DA-18-108-CML-2336 and DA-18-064-404-CML-9 for Camp Detrick, Frederick, Maryland, during the period 1 December, 1954 through 30 November, 1955. The research during this period represents a continuation of a program begun in December of 1952, dealing with the size reduction, collection, classification and handling of dry viable biological materials. From the onset the ultimate objective has been to develop equipment to be incorporated into a product having a maximum percent according to mass in the 1 to 5 micron size range with a maximum viability recovery.

Descriptive Note: Final Report, 1 Dec 54-31 Nov 55

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Subject Keywords: BACTERIAL AEROSOLS; CLASSIFICATION; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY

Page Count: 251

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-049449

Site Holding: CB DT DW

AD Number: 141677

Title: Fine Grinding Study.

Author(s): Nash, J. H. Olson, R. K. Baumstark, J. S.

Report Number:

Publish Date: 19570831

Abstract: In the quarterly report for the period June 1, 1957 to August 31, 1957, Project 82403, Contract No. DA-18-064-404-CML-117, an error was made in calculating the theoretical rpm at which instability should occur in the transparent spin mill. The error appears in Equation 4 on page 4.

Descriptive Note: Quarterly Report No. 3, 1 Jun-31 Aug 57

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY
Page Count: 36
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-049576
Site Holding: CB DT
AD Number: 134518
Title: Fine Grinding Study.
Author(s): Bollag, F. J. Nash, J. H. Olson, R. K. Lahti, W. H.
Report Number:
Publish Date: 19570614
Abstract: This is second quarterly report on a twelve month extension of Contract No. DA-18-064-404-CML-117. During this period, emphasis has been placed on the construction of a fourteen unit Class III modular hooding system designed to house a modified Micronizer fluid energy mill with associated material feeder, inertial classifier, cyclone collector and various other material handling equipment. The final section of the study of particle trajectories and impingement characteristics is presented. The theoretical investigation of optimum size distribution considering only particle size which was presented in a previous report for the 1 to 5 micron range is extended here to the 1 to 2 micron range.
Descriptive Note: Quarterly Report No. 2, 1 Mar-31 May 57
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; 14 Jun 57. Other requests for this document shall be referred to Commanding Officer, Chemical Corps, Army Chemical Center, MD.
Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY
Page Count: 48
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes: Continuation of Contract DA-18-064-CML-2336.

CBRNIAC Number: CB-049705
Site Holding: CB DT
AD Number: 128238
Title: Fine Grinding Project. Volume I. Summary Report.
Author(s): Aufderheide, C. J. Brandsberg, R. D. Fitz, C. D. Jones, S. P. McKenzie, R. J.
Report Number:
Publish Date: 19541130
Abstract: This is the final report on Contract No. DA-18-064-CML-2336 covering the research performed during the period during the period of 15 December 1952 to 15 August 1954.
Descriptive Note: Final Report, 15 Dec 52-30 Nov 54
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; Nov 54. Other requests for this document shall be referred to Commanding Officer, Chemical Corps, Army Chemical Center, MD.
Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; PRODUCTION; S/L CHANGE 8225; SAMPLING; VIABILITY
Page Count: 102
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes: Change Authority: CSL, APG notice, 5 Oct 82; 20030825 - target created C to U.

CBRNIAC Number: CB-049711

Site Holding: DT

AD Number: 128085

Title: Fine Grinding Project. Volume V. Theoretical Aspects of Fine Particle Production.

Author(s):

Report Number:

Publish Date: 19541101

Abstract: (Abstract is unavailable.)

Descriptive Note: Final Report, 15 Dec 52-30 Nov 54

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 81. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022.

Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; PRODUCTION; SAMPLING; VIABILITY

Page Count: 1

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes: See also Volume 1, AD128238. Change Authority: ST-A per DPG letter, 24 Aug 81.

CBRNIAC Number: CB-049712

Site Holding: DT

AD Number: 128084

Title: Fine Grinding Project. Volume IV. Material Evaluation.

Author(s):

Report Number:

Publish Date: 19541101

Abstract: (Abstract is unavailable.)

Descriptive Note: Final Report, 15 Dec 52-30 Nov 54

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 81. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022.

Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; PRODUCTION; SAMPLING; VIABILITY

Page Count: 1

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes: See also Volume 5, AD128085. Change Authority: ST-A per DPG letter, 24 Aug 81.

CBRNIAC Number: CB-049713

Site Holding: DT

AD Number: 128083

Title: Fine Grinding Project. Volume III. Collection and Classification.

Author(s):

Report Number:

Publish Date: 19541101

Abstract: (Abstract is unavailable.)

Descriptive Note: Final Report, 15 Dec 1952-30 Nov 1954

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 1981. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022.

Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; PRODUCTION; SAMPLING; VIABILITY
Page Count: 1
CB Collection:
Media Type:
Document Classification: U
Supplemental Notes: See also Volume 4, AD128084. Change Authority: ST-A per DPG letter 24 Aug 1981.

CBRNIAC Number: CB-049714
Site Holding: DT
AD Number: 128082
Title: Fine Grinding Project. Volume II. Survey and Evaluation of Commercial Mills.
Author(s):
Report Number:
Publish Date: 19541101
Abstract: (Abstract is unavailable.)
Descriptive Note: Final Report, 15 Dec 1952-30 Nov 1954
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 1981. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022.
Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; PRODUCTION; SAMPLING; VIABILITY
Page Count: 1
CB Collection:
Media Type:
Document Classification: U
Supplemental Notes: See also Volume 3, AD128083. Change Authority: ST-A per DPG letter, 24 Aug 1981.

CBRNIAC Number: CB-049820
Site Holding: CB DT DW 22641A DW 507998
AD Number: 123355
Title: Fine Particle Technology.
Author(s): Kemler, E. N. Melton, D. F.
Report Number:
Publish Date: 19540401
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 1981. Other requests for this document shall be referred to Commander, US Army Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022-5000.
Subject Keywords: BACTERIAL AEROSOLS; BIBLIOGRAPHIES; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY
Page Count: 38
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-049831
Site Holding: CB DT DW 23966A
AD Number: 121922
Title: Fine Grinding Study.
Author(s): Aufderheide, C. Fitz, C. D. Gaalswyk, A. McGillicuddy, J. Palm, J. D.

Report Number: 1399

Publish Date: 19550415

Abstract: Experimental studies to determine particle impingement efficiencies for vari-shaped obstructions started. A rotating impellor is inserted in the Micronizer 404 Mill, has lowered the product size to mass median diameter of 4 to 4 1/2 microns. The first series of classification tests made with the modified Superior Collector. One-half inch and three-quarter inch diameter cyclone collectors used with the Spinco-Tanner Mill are giving over 90 percent efficiency in collection of material ground down to a mass median diameter of 5 microns. Reliable data is gathered on the viability particle size relationship by using the Spinco Mill to grind Sm samples from the same lot to different sizes. Analysis of experimental data from Spinco Mill tests may provide a better understanding of the grinding theory. Studies are being made on the variations of some of the physical properties of Sm particles with size to gain a better understanding on the decrease of viability with size.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Subject Keywords: BACTERIAL AEROSOLS; CHEMICAL PROPERTIES; DEXTRINS; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY

Page Count: 78

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-049832

Site Holding: CB DT DW 23604B

AD Number: 121921

Title: Fine Grinding Study.

Author(s): Aufderheide, C. Fitz, C. D. Gaalswyk, A. McGillicuddy, J. Palm, J. D.

Report Number:

Publish Date: 19550101

Abstract: On the basis of the earlier evaluation tests three mills were selected for further study on the continued program of fine grinding. The mills chosen are the Mikro-Atomizer, the Micronizer 404, and the Trost Jet-T; the first is a mechanical mill and the latter two are fluid energy mills. Attempts are being made to improve grinding results by certain modifications suggested by theoretical studies and experience gained on the earlier tests. Effort thus far has been concentrated on the Micronizer 404 Mill where certain changes to improve internal classification have yielded a significantly lower size product. Further studies on particle trajectories in an air stream past vari-shaped obstructions are being conducted with a view toward obtaining data on impingement efficiencies and other factors. The Spinco-Tanner Mill is serving as a laboratory mill in a further study of the viability-particle size relationship. Use of this unit has made necessary the development of an efficient collector, and a one-half inch and a three-quarter inch cyclones are proving quite effective for this task. A modified Superior Air Centrifuge is now ready for testing, and will launch this program's investigation of classification techniques.

Descriptive Note: Bimonthly Report, 1 Dec-31 Jan 55

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Subject Keywords: BACTERIAL AEROSOLS; CHEMICAL PROPERTIES; DEXTRINS; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY

Page Count: 97

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-049841

Site Holding: CB DT DW F00075

AD Number: 121770

Title: Fine Grinding Project 8-2402.

Author(s): Solowey, Matheild

Report Number:

Publish Date: 19540215

Abstract: An investigation has shown that the degree of mechanical agitation given S. M. samples prior to analysis by the Whitby centrifuge is not critical in determining the measured mass median diameter. An aerophilometer having one-eighth the volume of the one designed by Camp Detrick was built and tested. Comparison of the small unit with the large one is favorable. Work has continued on improve the analyses obtained from the viability settling tube. An improved dispersing device has been built and a method of simultaneous sampling from all chambers developed. An assessment of the viability uniformity of unground pellets showed that characteristic red and brown pellets from lot 87 had about 15 percent the viability of a random sample. Similar results were found on other lot numbers. This variation leads to potentially greater errors in pre-grind sampling.

Descriptive Note: Bimonthly Progress Report, 15 Dec 53-15 Feb 54

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; 15 Feb 54. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center, MD.

Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PREPARATION; VIABILITY

Page Count: 122

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-050939

Site Holding: DT DW

AD Number: 063876

Title: Fine Grinding Project.

Author(s):

Report Number:

Publish Date: 19540615

Abstract: A comparison of the size analyses made by the Whitby Centrifuge method and by the aerophilometer on 24 samples of S.M. is presented. These results are generally in good agreement with each other but not with earlier Detrick aerophilometer measures. The samples have been returned to Detrick with a suggestion that further aerophilometer measurements be made in order to check on the possibility of agglomeration.

Descriptive Note: Bimonthly Progress Report, May-Jun 54

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; 15 Jun 54. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center, MD.

Subject Keywords: BACTERIAL AEROSOLS; CHEMICAL PROPERTIES; DEXTRINS; MEASUREMENT; PARTICLES; PREPARATION

Page Count: 149

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes: Change Authority: ST-A per DOD letter, 27 Oct 67.

CBRNIAAC Number: CB-051435

Site Holding: CB DT DW 561546 DW F00037

AD Number: 033893

Title: Fine Grinding Project.

Author(s): Barkley, J. E.

Report Number: 1299

Publish Date: 19540415

Abstract: An attempt is to be made to determine a safe method for size reduction of certain dry biological materials

to a size range of 1 to 5 microns average diameter with minimum loss of viability. This work is to be carried out as follows: 1) Existing representative grinding, collection and classification equipment deemed most promising as a result of prior studies and analyses shall be tested and evaluated to determine the operating characteristics of each. This work will include studies of the effects of feed rate, moisture content, gas flow, pressure, and temperature on the particle size visibility; and 2) Efforts will be made to determine, analyze, and evaluate the factors involved in producing the desired product. The fundamental fields to be investigated include: a) the biological properties of the material to be ground, b) the physical properties of the materials to be ground, c) the basic grinding methods, and d) the relationships of viability and particle size to material properties and grinding methods.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Subject Keywords: BACTERIAL AEROSOLS; CHEMICAL WARFARE AGENTS; COLLECTING METHODS; GRINDING; PARTICLE SIZE; PHYSICAL PROPERTIES; PREPARATION; SAMPLERS; SERRATIA MARCESCENS; VIABILITY

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-051571

Site Holding: CB DT DW F00020

AD Number: 025234

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number:

Publish Date: 19531215

Abstract: Under the subject contract, an attempt is to be made to determine a safe method for size reduction of certain dry materials to a size range of 1 to 5 microns average diameter with minimal loss of viability; and a means for collection and size classification of the ground product.

Descriptive Note: Monthly Progress Report, 15 Nov-15 Dec 53

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Administrative/Operational Use; 15 Dec 53. Other requests for this document shall be referred to Commanding Officer, Chemical Corps, Army Chemical Center, MD.

Subject Keywords: BACTERIAL AEROSOLS; BIOLOGICAL WARFARE AGENTS; GRINDERS; MEASUREMENT; PARTICLES; VIABILITY

Page Count: 70

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Change Authority: 3 Feb 54, per document marking; 20040205 - target created S to U.

CBRNIAC Number: CB-051756

Site Holding: CB DT DW 505980

AD Number: 009604

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number: 1186

Publish Date: 19530415

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES

Page Count: 1
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes: S to C GP-3; C to U, Camp Detrick Letter, 2 November 1954.

CBRNIAC Number: CB-051784
Site Holding: DT
AD Number: 008552
Title: Progress Report for March 1953.
Author(s): Sandgren, Marvin A.
Report Number: 1183
Publish Date: 19530401
Abstract: (Abstract is unavailable.)
Descriptive Note: Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 81. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Doc. Rev. Bd., Dugway, UT 84022.
Subject Keywords: AIRCRAFT; AMMUNITION; CABLES; CONTAINERS; CYLINDRICAL BODIES; DIOXIDES; DISPERSING; HOLES (OPENINGS); MODELS; MOUNTS; STAINLESS STEEL; SULFUR OXIDES; TUBES
Page Count: 8
CB Collection:
Media Type:
Document Classification: U
Supplemental Notes: S to C GP-3; C to U & Limitation change DPG, D/A Ltr, 24 August 1981.

CBRNIAC Number: CB-051785
Site Holding: DT DW F00015
AD Number: 008551
Title: Progress Report for January 1953.
Author(s): Sandgren, Marvin
Report Number: 1171
Publish Date: 19530203
Abstract: (Abstract is unavailable.)
Descriptive Note: Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 81. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Doc. Rev. Bd., Dugway, UT 84022.
Subject Keywords: BIOLOGICAL WARFARE
Page Count: 6
CB Collection:
Media Type:
Document Classification: U
Supplemental Notes: S to C GP-3; C to U & Limitation change DPG, D/A Letter, 24 August 1981.

CBRNIAC Number: CB-051801
Site Holding: DT
AD Number: 007263
Title: Progress Report for December 1952.
Author(s): Sandgren, Marvin
Report Number: 1166
Publish Date: 19530101

Abstract: (Abstract is unavailable.)

Descriptive Note: Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 81. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Doc. Rev. Bd., Dugway, UT 84022.

Subject Keywords: AMMUNITION; ATMOSPHERIC TEMPERATURE; BALLOONS; CONTAINERS; DROGUE PARACHUTES; EXTERNAL; HEAT; INSULATION; ROOFS; TEMPERATURE; TEST AND EVALUATION; VEHICLES

Page Count: 12

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes: S to C Gp-3; C to U & Limitation change DPG, D/A Ltr, 24 August 1981.

CBRNIAC Number: CB-051819

Site Holding: DT DW

AD Number: 006094

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number: 1178

Publish Date: 19530215

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: BACTERIAL AEROSOLS; MEASUREMENT; PARTICLES; PREPARATION; VIABILITY

Page Count: 1

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes: S to U Camp Detrick Letter, 2 November 1954.

CBRNIAC Number: CB-051820

Site Holding: CB DT DW F0011

AD Number: 006093

Title: Fine Grinding Project.

Author(s): Melton, D. F.

Report Number: TR-1176

Publish Date: 19530227

Abstract: A process is described for preparing a simulant material containing *Serratia marcescens* for grinding experiments. Methods employed for particle-size determinations are outlined. A literature survey is being made on the sizing of liquid and solid matter, collection and classification of solid particles, particle-size determination, sterilization, measurement of the temperature and humidity of particles, and environmental control during storage.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Administrative/Operational Use; 27 Feb 53. Other requests for this document shall be referred to Commander, Army Biological Labs, Fort Detrick, MD.

Subject Keywords: BACTERIAL AEROSOLS; CLASSIFICATION; CONTROL; DETERMINATION; DISPERSING; ENVIRONMENTS; GRINDING; HUMIDITY; LITERATURE SURVEYS; MEASUREMENT; PARTICLE SIZE; SERRATIA MARCESCENS; STERILIZATION; STORAGE; TEMPERATURE

Page Count: 14

CB Collection: UA

Media Type: PDF

Document Classification: U
Supplemental Notes: Camp Detrick Letter, 2 Nov 54.

CBRNIAC Number: CB-051838
Site Holding: DT DW F00006
AD Number: 004938
Title: Progress Report, February 1953.
Author(s): Sandgren, Marvin
Report Number: PR-1177
Publish Date: 19530301
Abstract: (Abstract is unavailable.)
Descriptive Note: Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 1981. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Document Revision Board, Dugway, UT 84022.
Subject Keywords: AIRCRAFT; BALLOONS; CHEMICALS; CONTAINERS; DROP TESTS; HEATERS
Page Count: 6
CB Collection:
Media Type:
Document Classification: U
Supplemental Notes: Classification Change Authority: DPG D/A letter, 24 Aug 1981.

CBRNIAC Number: CB-051887
Site Holding: DT
AD Number: 002338
Title: Progress Report for November 1952.
Author(s): Sandgren, Marvin A.
Report Number: 1158
Publish Date: 19521205
Abstract: (Abstract is unavailable.)
Descriptive Note: Progress Report, Nov 52
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 81. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022.
Subject Keywords: ALUMINUM; AMMUNITION; CABLES; CHEMICALS; ELECTRIC IGNITERS; ELECTRIC PRIMERS; HEATERS; HOOKS; MONOXIDES; SODIUM; TEMPERATURE; TERMINALS
Page Count: 12
CB Collection:
Media Type:
Document Classification: U
Supplemental Notes: Dugway Proving Ground Letter, 24 Aug 81 Limitation changed per Dugway Proving Ground Letter, 24 Aug 81; 20010716-target created, S to C and C to U.

CBRNIAC Number: CB-051904
Site Holding: CB DT DW 506014
AD Number: 000951
Title: Fine Grinding Project.
Author(s):
Report Number: RR-1180
Publish Date: 19530320
Abstract: The Anderson multiple pipet method for measuring particle size was tested with TiOsub2. An aerophilometer was completed. The theory of small particle motion was reviewed and put into a form applicable for use on some sedimentation particle size types of measuring devices. A method of evaluating and measuring the

effectiveness of a respiratory-type aerosol was formulated. Biological studies tested the importance of each variable in establishing viability cell counts.

Descriptive Note: Monthly Progress Report, 15 Feb-15 Mar 53

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: BIOLOGY; CELLS; COUNTING METHODS; MEASUREMENT; MEASURING INSTRUMENTS; MOTION; PARTICLE SIZE; PARTICLES; SEDIMENTATION; VIABILITY

Page Count: 51

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Letter FRO Security Officer, 23 Mar 54.

CBRNIAC Number: CB-058103

Site Holding: CB DW 507890 EDG E504926

AD Number:

Title: Report Evaluating the Feasibility of Delivery of Munitions by Balloons.

Author(s): Smith, J. R. Moore, C. B.

Report Number:

Publish Date: 19510601

Abstract: (Abstract is unavailable.)

Descriptive Note: Feasibility Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 1 Feb 1988. Other requests for this document shall be referred to Commander, US Army Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022-5000.

Subject Keywords:

Page Count: 147

CB Collection: CA

Media Type: CPDF

Document Classification: S

Supplemental Notes:

CBRNIAC Number: CB-058122

Site Holding: CB EDG E505696

AD Number:

Title: Study and Design Plan.

Author(s):

Report Number:

Publish Date: 19630923

Abstract: (Abstract is unavailable.)

Descriptive Note: Report No. 2436

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 1

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAC Number: CB-064634

Site Holding: CB DW 28552 EDG E504873

AD Number:

Title: An Airborne Integrated Weapons System for Anti-Crop Warfare.

Author(s): Stern, Sidney C. Pohl, Russell A.
Report Number: GM-1784 DTC-72-1190 CDTL-28552
Publish Date: 19571015

Abstract: (Abstract is unavailable.)

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 1 Jan 1989. Other requests for this document shall be referred to Commander, US Army Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022-5000.

Subject Keywords:

Page Count: 126

CB Collection: CA

Media Type: CPDF

Document Classification: C

Supplemental Notes:

CBRNIAAC Number: CB-072417

Site Holding: CB EDG E506394

AD Number:

Title: Letter Progress Report, December 1960.

Author(s): Nash, John H. Leiter, G. T.

Report Number:

Publish Date: 19610105

Abstract: The three 25-pound quantities of saccharin, Carbowax 6000 and Span 60 which were sent to the Fluid Energy Processing and Equipment Co., Philadelphia, PA to be ground to the 2-5 micron size range have been returned to us in the ground state. According to the microscopic size analyses furnished with the samples, the count median diameter of each sample is less than 5 microns. Of the three materials, Carbowax 6000 was the most difficult to grind. The count median diameter of this material was only slightly less than 5 microns, while those of saccharin and Span 60 were considerably less than 5 microns.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 5

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-072418

Site Holding: CB EDG E506395

AD Number:

Title: Letter Progress Report, January 1961.

Author(s): Nash, John G. Leiter, G. T.

Report Number:

Publish Date: 19610203

Abstract: Bulk tensile strength measurements have been made on finely ground Span 60. These measurements indicate that, for corresponding compressive loads, Span 60 has a higher bulk tensile strength than any powder tested thus far. With the information on hand, one can readily calculate the coefficient of friction μ between the powders measured and the inside surface of the aluminum cylinder of the bulk tensile strength apparatus.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

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-072419

Site Holding: CB EDG E506396

AD Number:

Title: Letter Progress Report, February 1961.

Author(s): Nash, John H. Zeller, H. W. Leiter, G. T.

Report Number:

Publish Date: 19610306

Abstract: The results of preliminary bulk tensile strength measurements on finely ground Span 60 were reported in Letter Progress Report for January, 1961. Additional measurements have been made over a wide range of compressive loads making it possible to plot the bulk tensile strength of a thin layer of powder immediately below the piston as a function of compressive load. This relationship proved to be linear as it was with the other powders previously tested. For a given compressive load, the bulk tensile strength of Span 60 is high compared with those of the other powders tested. Bulk tensile strength measurements were also made on a sample of Span 60 containing 1 percent by weight Cab-O-Sil. The only tests completed thus far are those for a compressive load of 77,000 dynes/cm². The results of these tests indicate that the bulk tensile strength of the sample containing Cab-O-Sil is less than half that of the sample containing no additives, compressive loads being equal.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 6

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-072420

Site Holding: CB EDG E506397

AD Number:

Title: Letter Progress Report, March 1961.

Author(s): Nash, J. H. Zeller, H. W. Leiter, G. T.

Report Number:

Publish Date: 19610405

Abstract: In last month's letter progress report, it was stated that bulk tensile strength measurements had been made on a sample of Span 60 containing 1 percent by weight Cab-O-Sil using a compressive load of 0.77×10^5 dynes/cm². Additional measurements have been made on this powder using compressive loads of 0.43×10^5 and 1.80×10^5 dynes/cm², respectively. Comparing the measurements on plain Span 60 with the recent measurements on Span 60 containing 1 percent, Cab-O-Sil, one notices a marked difference. The addition of 1 percent Cab-O-Sil has a two-fold effect. It reduces the coefficient of friction between the powder and the aluminum tube by 12.5 percent and it reduces the bulk tensile strength of the powder by 51.6 percent.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

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-072421

Site Holding: CB EDG E506398

AD Number:

Title: Letter Progress Report, April 1961.

Author(s): Nash, John H. Zeller, H. W. Leiter, G. C.

Report Number:

Publish Date: 19610505

Abstract: The bulk tensile strength apparatus has been used to study the distribution of bulk density throughout the length of a plug of compressed powder. Measurements have been made on saccharin and Span 60. Results indicate that the bulk density is an exponential function of the plug length. A similar relationship was found to exist for bulk tensile strength of powders.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

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-072422

Site Holding: CB EDG E506399

AD Number:

Title: Letter Progress Report, May 1961.

Author(s): Nash, John H. Zeller, H. W. Leiter, G. G.

Report Number:

Publish Date: 19610605

Abstract: In order to study the effects of deagglomerant agents on powder properties, it is essential to have an effective means for blending powders. For this reason, a considerable amount of effort has been devoted to finding an effective method for blending powders. Some of the methods tried include the following: sifting the sample through a common flour sifter, tumbling the sample back and forth in a polyethylene bag, mixing the sample in a Patterson-Kelley powder blender and ball milling. None of these methods, or combinations thereof, proved to be entirely satisfactory. The powders which have given the most trouble are saccharin and Span 60. Saccharin has a tendency to acquire an electric charge causing it to adhere to container walls. Span 60 has a tendency to agglomerate into small balls which are not easily broken up. The problem of deagglomerating and blending powders was finally solved by use of a small 2 inch diameter fluid energy mill. Since it was not necessary to grind the powders to smaller particle sizes but rather to deagglomerate and blend them, it became expedient to modify the mill somewhat. This modification consisted of sealing off the cyclone collector from the grinding chamber by means of a rubber stopper and using a paper vacuum cleaner bag to separate the particles from the effluent air. This modification permitted much higher feed rates to be used that would be possible with the cyclone collector. The mill was operated on dry, water-pumped nitrogen under a pressure of 25 psig. Feed rates of the order of 2 grams/second were used. Under these operating conditions, it is doubtful that the size of the primary particles was reduced; however, the action was violent enough to break up the agglomerants leaving the powder in a loose, fluffy form. Samples of saccharin, Span 60 and Carbowax 6000 were blended with 10 different agents reported to be effective in reducing or preventing agglomeration or caking. Shear strength tests and aerosol decay tests are being made on these samples to determine the effects of the additives. When these tests have been completed, those agents which do not produce the desired effect will be screened out and further work will be done to determine the optimum concentration of the agents which show promise.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

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-072423
Site Holding: CB EDG E506400
AD Number:

Title: Letter Progress Report, June 1961.
Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.
Report Number:
Publish Date: 19610707

Abstract: An investigation has been initiated to study the distribution of local bulk density throughout the length of a column of compressed powder. This differs from the previous work on bulk density in the following respect: Previously, the average bulk density of a column of compressed powder was measured as a function of column length. In the present study, the local bulk density is measured as a function of distance from the compressing piston. In both cases, the compressive force is a parameter. The apparatus consists of a series of one inch and on-half inch lengths of aluminum tubing with an ID of approximately 1-3/8 inch. A second tube 18 inches long has an ID such that the short tubes will fit smoothly inside. The series of short tubes are stacked end-for-end inside this second tube. The entire assembly is held securely in the vertical position by means of a special framework. The assembly is filled with powder and a compressive force is applied with a piston. The powder-filled sections are then "sliced" off and weighed individually. The density of the powder inside each section is determined from the weight and known volume. These densities are plotted as a function of distance from the piston to the center of the sections. Tests on saccharin have been completed. Tests on Span 60 and Carbowax 6000 will be made next.

Descriptive Note: Letter Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV
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-072424
Site Holding: CB EDG E506401
AD Number:

Title: Letter Progress Report, July 1961.
Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.
Report Number:
Publish Date: 19610807

Abstract: The study of variation of local bulk density throughout the length of a column of compressed powder as a function of distance from the piston was continued. Tests have been completed on saccharin and Carbowax 6000 and are well underway on Span 60. These tests will be completed in the near future and the results analyzed. A cursory inspection of the data indicates that local bulk density varies in a peculiar manner throughout the length of a column of compressed powder. Immediately below the piston, local bulk density is highest. As distance from the piston increases, local bulk density decreases until it reaches a minimum. Near the floor of the container, local bulk density increases again. This increase near the floor of the container is due primarily to the weight of the powder itself.

Descriptive Note: Letter Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV
Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:
Page Count: 5
CB Collection: UA
Media Type: PDF

Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-072425

Site Holding: CB EDG E506402

AD Number:

Title: Letter Progress Report, August 1961.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19610906

Abstract: A technique for blending and deagglomerating powders was described in the Fourth Quarterly Progress Report. This technique involved the use of a 2-inch diameter fluid energy mill. A Norgren air lubricator, which injects a fog-like mist into the air stream, has been added to the system for the purpose of coating powder particles with anti-static agents.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

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-072426

Site Holding: CB EDG E506403

AD Number:

Title: Letter Progress Report, September 1961.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19611010

Abstract: The main effort during the past month has been directed toward investigating effects of adsorbed water vapor on properties of the three base powders. This investigation has consisted of performing a series of tests including shear strength, disc-lifting, aerosol decay and electrostatic charge analysis on powder samples which have been pre-conditioned at various relative humidities ranging from <1 percent to 75 percent. Some of the preliminary results were given in the Letter Progress Report for August, 1961. A brief summary of the results are given.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 5

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-072427

Site Holding: CB EDG E506404

AD Number:

Title: Letter Progress Report, October 1961.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19611101

Abstract: The investigation of effects of adsorbed organic vapors on powder properties has begun. The apparatus used to treat powders with vapors has been described in a previous report. The first step in the process of treating a

powder with a vapor is to remove as much as possible of the existing adsorbed vapors and gases from the powder. This is done by pumping the powder container down to a pressure of about 20 microns of mercury for a period of at least 48 hours. The powder container is then isolated from the pump by means of a valve. Vapors are then admitted to the powder container by allowing air to bubble through a bath of the liquid whose vapors are being investigated and into the powder container. This process is continued until the pressure inside the powder container has reached atmospheric pressure. The powder thus treated is ready for testing.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

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-072428

Site Holding: CB EDG E506405

AD Number:

Title: Letter Progress Report, November 1961.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19611201

Abstract: In the Fifth Quarterly Progress Report work was described in which shear tests were made on samples of the three base powders containing various concentrations of Cab-O-Sil. It was found that in the case of Carbowax 6000 and saccharin, the addition of one percent by weight of Cab-O-Sil reduced the shear strength appreciably, and the addition of greater amounts of Cab-O-Sil continued to reduce shear strength but to a lesser degree. In the case of Span 60, there was a gradual reduction in shear strength with increasing amounts of Cab-O-Sil. Similar tests have been initiated in which aerosol decay tests are made on samples of the three base powders containing various concentrations of Cab-O-Sil. At present only the series of tests on saccharin have been completed. When the decay constant λ is plotted against percentage by weight of Cab-O-Sil, a minimum occurs in the region of 5 percent Cab-O-Sil. For either greater or lesser concentrations, the decay constant increases. Aerosol decay tests will be continued on samples of Carbowax 6000 and Span 60 containing various concentrations of Cab-O-Sil.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 3

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-072429

Site Holding: CB EDG E506406

AD Number:

Title: Letter Progress Report, December 1961.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620101

Abstract: In Letter Progress Report for November 1961, a series of tests was described which involved measurement of the decay constant λ as a function of concentration of Cab-O-Sil in each of the three base powders (saccharin, Carbowax 6000 and Span 60). The results for the series of tests on saccharin were reported. The series of tests on Carbowax 6000 and on Span 60 have now been completed and the results are presented. The results for the saccharin tests are included for comparison. It is seen that the optimum concentration from the

standpoint of aerosol decay is about 5 percent for saccharin and about 20 percent for Carbowax 6000 and Span 60.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

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CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-072431

Site Holding: CB EDG E506407

AD Number:

Title: Letter Progress Report, January 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620201

Abstract: Because our supply of the three base powders (saccharin, Carbowax 6000 and Span 60) is dwindling low, 25-pound quantities of each of these materials have been sent to the Fluid Energy Processing and Equipment Co., Philadelphia, Pennsylvania to be ground down to the 2-5 micron size range. The Sixth Quarterly Progress Report covering the period 3 September 1961 through 3 January 1962 has been completed and is now in the process of being reproduced for distribution. In Letter Progress Report for December 1961, it was stated that shear strength tests were being made over a range of compressive loads on samples of the three base powders containing 1 percent by weight of various anti-agglomerant agents. These tests have been completed and the results analyzed. It has been found that in the case of saccharin and Carbowax 6000, the agents Alon-C (aluminum oxide), Cab-O-Sil (silica) and P-25 (titanium dioxide) are the most promising, and in the case of Span 60, the agents Alon-C and Tri-calcium Phosphate are the most promising. Data for all of the agents are presented in both tabular form and graphical form in the forthcoming Sixth Quarterly Progress Report.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 5

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-072432

Site Holding: CB EDG E506408

AD Number:

Title: Letter Progress Report, February 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620301

Abstract: A new technique for measuring dynamic angle of response of powders was described in Letter Progress Report for December, 1961. The apparatus for making these measurements has been completed.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 9

CB Collection: UA

Media Type: PDF

Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-072434

Site Holding: CB EDG E506409

AD Number:

Title: Letter Progress Report, March 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620301

Abstract: Dynamic angle of repose tests have been completed for the samples of the three base powders (saccharin, Carbowax 6000 and Span 60) containing various amounts of those anti-agglomerant agents which have proven effective in lowering shear strength. In the case of saccharin and Carbowax 6000 the agents are Cab-O-Sil (silica), Alon-C (alumina) and P-25 (titanium dioxide); in the case of Span 60, the agents are Cab-O-Sil and tri-calcium-phosphate. The concentrations used are 0 percent, 1 percent, 5 percent, 10 percent, 30 percent and 100 percent by weight of agent. The results will be presented in the forthcoming Seventh Quarterly Progress Report.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

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-072435

Site Holding: CB EDG E506410

AD Number:

Title: Letter Progress Report, April 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620501

Abstract: The results of previous shear strength tests have indicated that only a few of the anti-agglomerant agents tested merit further investigation. These are Alon-C (alumina), P-25 (titanium dioxide), Cab-O-Sil (silica) and Tri-calcium Phosphate. The first three were found to be most effective for the base powders saccharin and Carbowax 6000, and the last two most effective for Span 60. An intensive investigation has been conducted to determine the optimum agent concentration to use in each case. One of the tests used in this investigation is the shear strength test. A compressive load of about 6,000 dynes/cm² and a powder bed thickness of about 1.7 mm was used. The results of these tests are summarized in graphical form. It can be seen that generally the best additive is Cab-O-Sil. In the case of saccharin and Carbowax 6000, small amounts of the order of 1 percent of additive seem to do the most good while in the case of Span 60 this is not generally the rule. No additive in small amounts seems to reduce the shear strength of Span 60 significantly.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 5

CB Collection: UA

Media Type: PDF

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Supplemental Notes:

CBRNIAC Number: CB-072437

Site Holding: CB EDG E506411

AD Number:**Title:** Letter Progress Report, May 1962.**Author(s):** Nash, John H. Leiter, G. G. Johnson, A. P.**Report Number:****Publish Date:** 19620601

Abstract: The greater share of the past month's activity has been focused on the investigation of effects of surface active agents and adsorbed vapors on powder properties. Some preliminary work along this line was reported in the Seventh Quarterly Progress Report. In the work previously reported, a concentration of 2 percent agent and 98 percent powder had been used. Some of these samples seemed quite moist; therefore, it was decided to prepare new samples using a concentration of 1 percent agent and 99 percent powder. This concentration will be used on all samples to be tested in future screening tests. The object of the first series of tests is to determine if one of the four main categories of surface active agents (non-ionic, anionic, cationic and amphoteric) is superior to the others for a given powder. Several different agents in each category will be tested. If it can be shown that one category is more promising than the others for a given powder, then additional agents in this category will be tested and evaluated. The more promising agents will then be tested more thoroughly to determine optimum concentration. The agents chosen to represent the non-ionic category are: Span 20, Span 80, Tween 20, Triton X-100 and Diglycol Laurate. Those chosen to represent the anionic category are: Santomerse S, Santomerse SX, Triton X-200, Zelec NL and Zelec NK. Those chosen to represent the cationic category are Diam 26, Aliquot 26, Alamine H26D, G-3534, Triton X-400 and BTC-2125. Those chosen to represent the amphoteric category are Deriphath 151 and Deriphath 154. The complete series of screening tests will be made on one base powder at a time. Saccharin has been selected to be tested first because it tends to become more highly charged than either of the other two base powders. Saccharin samples have been coated with the surface active agents chosen to represent the non-ionic and amphoteric categories. The method for coating the powders is discussed in the Sixth Quarterly Progress Report. The tests being used to evaluate the various agents are aerosol decay, electrostatic charge and shear strength. These tests are currently in progress.

Descriptive Note: Letter Report**Corp Author Name:** GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV**Distribution Statement:** Distribution limited to DoD agencies only.**Subject Keywords:****Page Count:** 5**CB Collection:** UA**Media Type:** PDF**Document Classification:** U**Supplemental Notes:****CBRNIAAC Number:** CB-072439**Site Holding:** CB EDG E506412**AD Number:****Title:** Letter Progress Report, June 1962.**Author(s):** Nash, John H. Leiter, G. G. Johnson, A. P.**Report Number:****Publish Date:** 19620701

Abstract: For the most part, the investigations this month have dealt with determining effects of various surface active agents on properties of saccharin. Twenty different surface active agents representing each of the four main types (non-ionic, anionic, cationic and amphoteric) have been tested. The types of tests performed are shear strength, electrostatic charge and dispersibility.

Descriptive Note: Letter Report**Corp Author Name:** GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV**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-072441

Site Holding: CB EDG E506413

AD Number:

Title: Letter Progress Report, July 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620801

Abstract: The investigation of effects of surface active agents and adsorbed foreign vapors on powder properties has continued. The initial phase of this investigation was completed last month during which it was found that cationic-type agents definitely improve the dispersibility characteristics of saccharin. Similar tests are presently being conducted on Carbowax 6000 samples treated with the same agents.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 3

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-072442

Site Holding: CB EDG E506414

AD Number:

Title: Letter Progress Report, August 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620901

Abstract: The investigation of effects of various surface active agents on powder properties has continued. The first base powder to be investigated was saccharin. The results of these tests have been previously reported. Present efforts are being concentrated on Carbowax 6000. The same agents and the same concentrations are used in the case of Carbowax 6000 as in the case of saccharin.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

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-072444

Site Holding: CB EDG E506415

AD Number:

Title: Letter Progress Report, September 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19621001

Abstract: Tests on the Carbowax 6000 samples treated with various surface active agents have been completed. The investigation of effects of adsorbed vapors has continued, the most recent vapor being propionaldehyde. Attempts have been made to grind a sample of egg albumin, and initial tests have been made on this material. A study has been initiated to investigate the dispersibility characteristics of compacted plugs of powder.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

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-072445

Site Holding: CB EDG E506416

AD Number:

Title: Letter Progress Report, October 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19621101

Abstract: Some preliminary work with egg albumin was reported in Letter Progress Report for September 1962. Most of the effort during the past month has been directed toward the continuation of this work.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 5

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-072447

Site Holding: CB EDG E506417

AD Number:

Title: Letter Progress Report, November 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19621101

Abstract: We have continued our investigation of effects of surface active agents on powder properties. The powder used in the current series of tests is Span 60. Bulk tensile strength tests have been made on a sample of finely-ground egg albumin.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

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-072449

Site Holding: CB EDG E506418

AD Number:

Title: Letter Progress Report, December 1962.

Author(s): Nash, John H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19630101

Abstract: Shear strength tests have been completed on the Span 60 samples coated with various surface active

agents. Effects of Cab-O-Sil on properties of egg albumin have been studied. Bulk tensile strength tests have been made on a sample of Carbowax 6000 containing 1 percent Cab-O-Sil. A calculation has been made to determine how much Cab-O-Sil would have to be added to a sample of Carbowax 6000 to completely coat every particle with a layer of Cab-O-Sil particles.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

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-072450

Site Holding: CB EDG E506419

AD Number:

Title: Letter Progress Report, January 1963.

Author(s): Nash, John H. Leiter, G. G. Stender, D. Johnson, A. P.

Report Number:

Publish Date: 19630201

Abstract: Effects of Cab-O-Sil concentration on shear strength of egg albumin have been investigated. Optimum concentration was found to be between 1 and 5 percent. Dispersibility tests have been completed on Span 60 samples treated with various surface active agents. The most significant finding here is that both anionic agents and cationic agents improve the dispersibility characteristics of Span 60. The approach taken in the study to explain effects of surface active agents on powder properties from the chemical viewpoint is outlined.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 5

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-072652

Site Holding: CB EDG E506388

AD Number:

Title: Letter Progress Report for June 1960, Contract DA-18-108-405-CML-824.

Author(s): Nash, John H. Zeller, H. Wm. Leiter, Gilbert T.

Report Number:

Publish Date: 19600611

Abstract: Enclosed is a summary of research work performed during the month of June, 1960. The following personnel have been assigned to the project: John N Nash -- project director; H. Wm. Zeller -- physicist; Gilbert T. Leiter -- physicist. For the most part, the research work including experimental and theoretical work will be performed by the above named personnel. In addition, full use will be made of the services provided by various "in house" consultants including S. P. Jones (Manager, Materials and Mechanics Research), Gordon Whitnah (Manager, Mechanics Research), Dr. John Baumstark (bio-chemist), Walter James (mathematician) and others.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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-072653
Site Holding: CB EDG E506389
AD Number:
Title: Letter Progress Report for July 1960, Contract DA-18-108-405-CML-824.
Author(s): Nash, John H.
Report Number:
Publish Date: 19600805

Abstract: Enclosed is a summary of research work performed during the month of July, 1960. A 25 pound bag of saccharin and a 75 pound bag of Carbowax 6000 have been received. These materials will be ground and used for experimental purposes. Samples of the following deagglomerants have been received: Cab-O-Sil made by Godfrey L. Cabot, Inc. Santocel made by Monsanto Chemical Co. Attacote made by Minerals and Chemicals Corp of America. Tri Calcium Phosphate made by Monsanto Chemical Co.

Descriptive Note: Letter Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
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-072655
Site Holding: CB EDG E506390
AD Number:
Title: Letter Report for August 1960, Contract DA-18-108-405-CML-824.
Author(s): Nash, John H. Zeller, H. Wm. Leiter, G.
Report Number:
Publish Date: 19600901

Abstract: Enclosed is a summary of research work performed during the month of August 1960. To enable the investigation of various deagglomerants, sacharin samples containing one percent by weight of each of the following additives were ground in the Alpine mill: Cab-O-Sil (amorphous silica) made by Godfrey L. Cabot, Inc. Santocel (amorphous silica) made by Monsanto Chemical Corp. Tri Calcium Phosphate $\text{Ca}_3(\text{PO}_4)_2$ made by Monsanto Chemical Corp. Micria AL (alumina) made by Monsanto Chemical Corp. Kalite (surface coated CaCO_3) made by diamond Alkali Co. Multofex MM (ultra Fine CaCO_3) made by Diamond Alkali Co. Super Multifex (ultra fine surface coated CaCO_3) made by Diamond Alkali Co. Attasorb LVM (ultra fine Attapulugus clay) made by Minerals and Chemicals Corp of America.

Descriptive Note: Letter Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
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-072658
Site Holding: CB EDG E506391
AD Number:
Title: Letter Progress Report for September 1960, Contract DA-18-108-405-CML-824.

Author(s): Nash, John H. Zeller, H. W. Leiter, G. T.

Report Number:

Publish Date: 19601005

Abstract: Enclosed is a summary of research work performed during the month of September 1960. The samples of Carbowax 6000 which were custom ground by the Fluid Energy Processing Equipment Com Philadelphia, Pennsylvania, have been received. One sample contained no additives and the other contained 1 percent by weight tri-calcium-phosphate to serve as an anti-caking agent. Both samples were processed in a No. 0202-2 Laboratory size Jet-O-Miser fluid energy mill using compressed air at room temperature and at a pressure of 91 to 99 psig. Feed rates were varied from 1.39 to 8.0 lb/hr. In general, the lowest feed rates produced the smallest particle sizes. According to the microscopic size analyses furnished by the vendor, a count median diameter (CMD) of 6.2, microns was obtained for the sample ground at 1.39 lb/hr and a CMD of 8.4 microns for the sample ground at 8.0 lb/hr. Another samples ground at 3.94 lb/hr has a CMD of 3.5 microns. No test have been performed on these samples as yet.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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-072659

Site Holding: CB EDG E506392

AD Number:

Title: Letter Progress Report for October 1960, Contract DA-18-108-405-CML-824.

Author(s): Nash, John H. Leiter, G. T.

Report Number:

Publish Date: 19601104

Abstract: Enclosed is a summary of research work performed during the month of October 1960. Twenty-five samples of saccharin, Carbowax 6000 and Span 60 have been sent to the Fluid Energy Processing and Equipment Co, Philadelphia, Pennsylvania to be custom ground to the 2-5 micron size range. This company has demonstrated its capability to grind organic materials to the size range of interest in their previous tasks with Carbowax 6000.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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-072660

Site Holding: CB EDG E506393

AD Number:

Title: Letter Progress Report for November 1960, Contract DA-18-108-405-CML-824.

Author(s): Nash, John H.

Report Number:

Publish Date: 19601202

Abstract: Enclosed is a summary of research work performed during the month of November 1960. The 25-pound quantities of saccharin, Carbowax 6000 and Span 60 which were sent to the Fluid Energy Processing Equipment Co, Philadelphia, PA, to be ground to the 2-5 micron size range are scheduled for shipment on December 5, 1960.

Descriptive Note: Letter Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
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-073088
Site Holding: CB EDG E490011
AD Number:
Title: Monthly Letter Progress Report for October 1962, Contract DA-18-108-AMC-44-A.
Author(s): Stroom, Paul D.
Report Number:
Publish Date: 19621115
Abstract: The attached progress report chart shows the expenditures and labor hours for October 1962. The total expenditures were \$3,327 associated with 297 man hours. These figures are in agreement with the predicted values for the month. On 9-10 October 1962, the writer and Mr. A. McFarland met with Major P. Hexner, Mr. A. Pierne, and Mr. M. Gordon to discuss the objectives and scope of the new contract and physical, chemical, and toxicological characteristics of BZ agents. It was agreed that the main effort on this program will be devoted to investigating the fluid dynamic method of dissemination, as set forth in the proposal.
Descriptive Note: Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 5
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes: Regraded: Unclassified by authority of DA Form 15, M. Gordon, 24 September 1970.

CBRNIAC Number: CB-075282
Site Holding: CB EDG E504872
AD Number:
Title: Title Classified.
Author(s): Stern, Sidney C. Pohl, Russell A.
Report Number: AC-367
Publish Date: 19590301
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV
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-076280
Site Holding: CB EDG E505684
AD Number:
Title: Contract AF-08(635)-3701. Monthly Technical Report for September 1963.
Author(s):

Report Number: CRDL-TL-63-S-1008 CRDL-63-S-1032
Publish Date: 19631011
Abstract: (Abstract is unavailable.)
Descriptive Note: Monthly Technical Report
Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 4
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-076282
Site Holding: CB EDG E505685
AD Number:
Title: Contract AF-08(635)-3701. Monthly Technical Report for October 1963.
Author(s):
Report Number: CRDL-63-S-1174 CRDL-TL-64-S-939
Publish Date: 19631113
Abstract: (Abstract is unavailable.)
Descriptive Note: Monthly Technical Report
Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 5
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-076284
Site Holding: CB EDG E505686
AD Number:
Title: Contract AF-08(635)-3701. Monthly Technical Report for December 1963.
Author(s):
Report Number: CRDL-64-S-81 CRDL-TL-64-S-866
Publish Date: 19640123
Abstract: (Abstract is unavailable.)
Descriptive Note: Monthly Technical Report
Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 15
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-076285
Site Holding: CB EDG E505687
AD Number:
Title: Contract AF-08(635)-3701. Monthly Technical Report for January 1964.
Author(s):
Report Number: CRDL-64-S-143 CRDL-TL-64-S-869

Publish Date: 19640213
Abstract: (Abstract is unavailable.)
Descriptive Note: Monthly Technical Report
Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 3
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-076288
Site Holding: CB EDG E505690
AD Number:
Title: Design and Development of an Incapacitating Disseminator. Quarterly Report No. 1, 16 June-16 September 1963.
Author(s): Whitnah, Gordon R.
Report Number: APG-TDR-63 CRDL-63-S-1056 CRDL-TL-64-S-938
Publish Date: 19631024
Abstract: (Abstract is unavailable.)
Descriptive Note: Quarterly Technical Report
Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV
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-076289
Site Holding: CB EDG E505691
AD Number:
Title: Design and Development of an Incapacitating Disseminator. Quarterly Report No. 2, 16 September-16 December 1963.
Author(s):
Report Number: APGC-TDR-64 CRDL-64-S-135
Publish Date: 19640101
Abstract: (Abstract is unavailable.)
Descriptive Note: Quarterly Report
Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 20
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-078678
Site Holding: CB EDG E502541
AD Number:
Title: Dissemination of Chemical Agents.
Author(s):

Report Number: ASR-31 R-1090 CRDL-62-S-516
Publish Date: 19620531
Abstract: (Abstract is unavailable.)
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 143
CB Collection: CA
Media Type: CPDF
Document Classification: C
Supplemental Notes:

CBRNIAC Number: CB-079812
Site Holding: CB EDG E505544
AD Number:
Title: Progress Report No. 5, August 1950.
Author(s): James, T. R. Hakomaki, R. I.
Report Number: PR-5
Publish Date: 19500901
Abstract: Tests were continued on the vacuum or open filler method as outlined previously. The pressures in some tests reported in this report are almost atmospheric; only enough reduction in pressure was maintained to keep the bell jar tight against its base in order to prevent any air currents from destroying the validity of the experiments. The results of these tests were encouraging in that the scattered particles apparently had come from the upper portion of the filling apparatus and not from the lower (or funnel portion).
Descriptive Note: Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 16
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-079868
Site Holding: CB EDG E505545
AD Number:
Title: Progress Report No. 6, September 1950.
Author(s): James, T. R. Hakomaki, R. I.
Report Number: PR-6
Publish Date: 19501001
Abstract: Work this month has been concentrated mostly on the "B" testing of the open-filler with auction collar. The use of improved techniques have given some surprisingly good results and indicate that this method has very good possibilities. On the last two tests reported, the indications of scattering have been negative.
Descriptive Note: Progress Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 12
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-079871

Site Holding: CB EDG E505546

AD Number:

Title: Progress Report No. 7, October 1950.

Author(s): James, T. R. Hakomaki, R. I.

Report Number: PR-7

Publish Date: 19501106

Abstract: The first crude apparatus for filling by the open filler with suction method has been replaced with more elaborate and precise equipment. An entirely new filling funnel has been built having readily interchangeable suction collars of two types, a motor driven auger and improved loading facilities. A chamber has also been built into which this loading apparatus can be placed for operation in a dry inert atmosphere.

Descriptive Note: Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 15

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-079901

Site Holding: CB EDG E505547

AD Number:

Title: Progress Report No. 8, November 1950.

Author(s): James, T. R. Hakomaki, R. I.

Report Number: PR-8

Publish Date: 19501212

Abstract: The filling tests with "B" material No. 2 indicate that the method of filling, using the slotted suction collar, is very satisfactory and will give results indicating no scattering of the test material. The greatest source of unsatisfactory tests results have been due to the leakage of material from the polyethylene bag surrounding the supply funnel. More careful manipulation should cure this trouble. If it does not, it will be possible to cure the trouble by making separate compartments to isolate the loading section from the filling section. This would more closely simulate the actual conditions under which the machine would operate.

Descriptive Note: Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 10

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-090178

Site Holding: CB EDG E504507

AD Number:

Title: Dissemination of Solid and Liquid BW Agents. Unclassified Excerpts from Quarterly Progress Report No. 6, 4 September-4 December 1961.

Author(s): Whitnah, G. R.

Report Number: GM-2264

Publish Date: 19620223

Abstract: Theoretical studies during this reporting period have been primarily concerned with the energy of compaction of dry powders. On careful examination, the compaction process is found to be very complex, even when viewed as a macroscopic phenomenon. Before a rational theory of compaction can be developed, it is

necessary to construct a model for powder behavior which is capable of describing the general properties of compacted powders. A discussion of these preliminary theoretical considerations is presented herein, together with new experimental data on the work of compaction for several test powders.

Descriptive Note: Excerpts

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 60

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-090181

Site Holding: CB EDG E504508

AD Number:

Title: Dissemination of Solid and Liquid BW Agents. Unclassified Excerpts from Quarterly Progress Report No. 7, 4 December 1961-4 March 1962.

Author(s): Whitnah, G. R.

Report Number: GM-2300

Publish Date: 19620622

Abstract: Studies of the mechanical properties and behavior of dry powders were continued during the period covered by this report. The major effort during this period was devoted to designing and fabricating improved apparatus for measuring significant mechanical properties of dry powders. Recently obtained experimental results relating to powder shear strength and wall friction phenomena are presented. Also included is an analytical study of the stress distribution in a powder subjected to compaction in a piston-cylinder device.

Descriptive Note: Excerpts

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 74

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-090182

Site Holding: CB EDG E504509

AD Number:

Title: Dissemination of Solid and Liquid BW Agents. Unclassified Excerpts from Quarterly Progress Report No. 8, 4 March-4 June 1962.

Author(s): Whitnah, G. R.

Report Number: GM-2322

Publish Date: 19620822

Abstract: This is the Eighth Quarterly Progress Report on work accomplished on Contract Number DA-18-064-CML-2745. Under this contract, General Mills, Inc. is conducting a comprehensive research and development program on the dissemination of solid and liquid BW agents. With the completion of the developmental model of the liquid agent disseminating store in April of this reporting period, the emphasis of work shifted almost entirely to areas relating to finely-divided solids. Consequently most of this report deals with progress in these areas. However, Section 8 does present some of the results of laboratory and field testing of the liquid agent disseminator. On 22, 23 May, General Mills, Inc. was host to the Third Dissemination Coordination Meeting which was attended by representatives from Fort Detrick, Army Chemical Center, Chemical Corps Research and Development Command, Aerojet-General Corporation, Cornell Aeronautical Laboratories and General Mills, Inc. Some of the material covered in this progress report was also presented at this meeting.

Descriptive Note: Excerpts

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 81

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-090183

Site Holding: CB EDG E504510

AD Number:

Title: Dissemination of Solid and Liquid BW Agents. Unclassified Excerpts from Quarterly Progress Report No. 9, 4 June-4 September 1962.

Author(s): Whitnah, G. R.

Report Number: GM-2344

Publish Date: 19621019

Abstract: One of the basic goals of our investigation of the mechanics of powders is the development of means for measuring important physical properties of powdered materials. There are two main areas of interest in regard to the mechanical behavior of powders: the bulk properties and characteristics of powders, which are particularly important with respect to the compaction process; and the aerosolization behavior of compactible powders. Considerable progress has been made in developing devices and techniques for measurement of the bulk properties of powders. A newly developed technique for precise experimental evaluation of the compaction characteristics of powders is described. Also, further studies of the shear strength, bulk tensile strength, and bulk density of powders are reported in subsequent sections of this report. Although the process of breakup and aerosolization of compacted powders must be closely related to bulk properties, considerable difficulty has been experienced in establishing the nature of this relationship. For this reason, several new concepts are being studied in which pneumatic or hydrodynamic stresses would be employed in experiments to define the mechanical properties of powders.

Descriptive Note: Excerpts

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 69

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-090194

Site Holding: CB EDG E504511

AD Number:

Title: Dissemination of Solid and Liquid BW Agents. Unclassified Excerpts from Quarterly Progress Report No. 11, 4 December 1962-4 March 1963.

Author(s): Whitnah, G. R.

Report Number: GM-2396

Publish Date: 19630504

Abstract: A program of study is underway to characterize the behavior of powders in the uncompacted state, their behavior during compaction, and their behavior in the compacted state. Such a study should yield information relative to the manufacture, handling, compaction, and dissemination of bulk powders. During the current quarter, we have obtained more information about the mechanism of failure of a powder under compaction, and about the anisotropic nature of a compacted powder. We have also made improvements in our ability to measure tensile strength and shear strength, and to characterize a given powder by the use of a multipurpose test unit that can be operated inside a single isolation laboratory. Studies were initiated to investigate fluidization and flow properties of uncompacted powders to determine what factors influence interparticle resistance to flow.

Descriptive Note: Excerpts

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 84

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-110333

Site Holding: CB DW 506395

AD Number:

Title: Final Progress Report No. 9. (GMI Project A-157).

Author(s): James, T. R. Hakomaki, R. I.

Report Number:

Publish Date: 19510201

Abstract: The report deals with the problems of filling and capping without the scattering of particles of material. The ultimate goal was to fill a container with material and then to seal it in an inert atmosphere within the container. A variety of methods were tested, none of which were very satisfactory. A conveyor belt system was tested and proved satisfactory. A sample container of mold polystyrene was tested for leakage. This container proved to be leakage free.

Descriptive Note: Final Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: CHAMBERS; CONTAINMENT (GENERAL); CONTAMINANTS; CONVEYORS; DIAPHRAGMS (MECHANICS); DRY MATERIALS; FILLING; GLOBULINS; INERT MATERIALS; NEEDLE-DIAPHRAGM FILLER METHOD; NEEDLES; OPEN-FILLER METHOD; PARTICLES; SCATTERING; TEST AND EVALUATION; VACUUM CHAMBERS; VACUUM DISTILLATION; VACUUM SEALS

Page Count: 122

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-111567

Site Holding: DW F00003

AD Number: 2338

Title: Progress Report for November 1952.

Author(s): Sandgren, Marvin A.

Report Number: 1158

Publish Date: 19521205

Abstract: Work progressed on the munitions case accessories, including the tie band, support cables and snap hook, and Squib terminals and terminal cover. Overheating of the chemical heater was eliminated by placing a sheet of polyethylene film between the sodium monoxide and aluminum. The duration of the last 2 test runs was accordingly increased from about 15hr to 21 and 23 hr, respectively, at an ambient temperature of 50 deg C. An improved stop pin arrangement for the master timer was devised.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 24 Aug 81. Other requests for this document shall be referred to Commander, Dugway Proving Ground, Attn: Doc. Rev. Bd., Dugway, UT 84022.

Subject Keywords: ALUMINUM; AMMUNITION; CABLES; CASE ACCESSORIES; CHEMICALS; ELECTRIC IGNITERS; ELECTRIC PRIMERS; HEATERS; HOOKS; MONOXIDES; OVERHEATING; PLASTICS; POLYETHYLENE; SNAP HOOKS; SODIUM; SQUIBTERMINALS; SUPPORT CABLES;

TEMPERATURE. TERMINALS; TERMINAL COVERS; TIMERS; TIMING DEVICES

Page Count: 8

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes: Change Authority: Dugway Proving Ground letter, 24 August 1981 Limitation changed per DPG letter, 24 August 1981; 20010716-target created, s to c and c to u.

CBRNIAAC Number: CB-111678

Site Holding: CB DT DW 505988

AD Number: 025425

Title: Survey of Technical Literature on Grinding and Separation.

Author(s): Kemler, E. N. Lajoy, M. H. Whinah, G. R. Fritz, C. D. Howe, R. J.

Report Number: 1191

Publish Date: 19530515

Abstract: This review of the literature relating to fine particles has been limited to three main phases. These are the general theories relating to particle production in general, the methods of particle separation and classification, and finally the commercial methods used in producing fine particles. Since this general field of activity involves so many phases of modern industry and concerns itself with such a wide range of materials and particle size requirements it is to be expected that the classification and summarization of this material would present many practical difficulties. The general field of small particle production or, for that matter, of particle production, has usually originated from necessity in any industry, hence, is largely of an empirical nature. There has been no generalized theory developed which explains the subject, although the influence of some of the many factors are known. The subject of particle separation and classification is perhaps in a better organized state of development. Theories of particle settling together with the limits in which they apply have been fully developed. Fine particle production, in general, may involve a wide range of equipment since most materials for such purposes are supplied in sizes many times that of the final requirement and may, therefore, have to go through several size reductions. The three main sections of this report summarizes briefly the work done in the three main fields covered. For a more detailed study of a specific problem it is necessary to resort to the original references.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Other requests for this document shall be referred to General Mills Inc., Minneapolis MN.

Subject Keywords: GRINDERS; LABORATORY EQUIPMENT; MEASUREMENT; PARTICLES; SENSES (PHYSIOLOGY)

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-112299

Site Holding: CB DT DW 505987

AD Number: 025426

Title: Patent Survey on Separation and Classification.

Author(s): Kemler, E. N.

Report Number:

Publish Date: 19530505

Abstract: This report reviews typical patent literature relating to the field of separation, classification and related problems as applied to the general field of small particles. Any review of the patent literature on such a broad subject as this introduces complications because of the wide potential range of origin of the patentable material and because of the general changing emphasis depending on the relative state of technology in various industrial applications. The material included in this report includes most of the recent patents and what is thought to be typical of the older art. In general, the patent material relating to separation, particularly of fine particles, might be considered as both meager and unsatisfactory. In the area of fine particles, techniques are, in general, more

important than principles. However, material of the type included can be very helpful in working out new approaches to problems and in getting indications of the types of things which might or might not be considered as applicable.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: LABORATORY EQUIPMENT; MEASUREMENT; PARTICLES; SENSES (PHYSIOLOGY)

Page Count: 187

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-112300

Site Holding: CB DT DW 20990

AD Number: 025334

Title: Patent Survey of Fine Grinding Technology.

Author(s): Kemler, E. N.

Report Number:

Publish Date: 19530415

Abstract: The review of representative patent literature relating to particle size reduction is quite complex both because of the amount of the literature and the many areas in which it is applied. The subject titles of patents include comminution, disintegration, particle size reduction, grinding, crushing, milling, pulverizing and attrition to mention only a few of what might be called representative subject headings. The applications of the techniques again cover a wide range of fields or industries. Perhaps the largest relates to the cereal grain field where the scope ranges from corn shelling to flour milling. Another broad field utilizing size reduction is the mining and relating metals and mineral industry. Here applications range from large rock crushing machinery to equipment for making fine metal powders for the powder metallurgy field. Coal crushing and pulverizing equipment is another field studied by many inventors. Here the development and commercialization of pulverized fuel burning equipment on a wide scale accelerated developments. The development of expansive disintegration methods similar in principle to those used on the food cereal industry are perhaps the most impressive. The chemical industry has a wide range of requirements for size reduction of material. Those for producing colloidal materials go beyond the range under study.

Descriptive Note: Fine Grinding Project No. 1181

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Administrative/Operational Use; 15 Apr 53. Other requests for this document shall be referred to Commanding Officer, Chemical Corps, Army Chemical Center, MD.

Subject Keywords: BALL MILLS; DISINTEGRATION; FREEZE DRYING; GRINDERS; JET IMPACT; MEASUREMENT; MECHANICAL IMPACT; MILLING MACHINES; PARTICLES; PATENTS; ROLL GRINDER; SENSES (PHYSIOLOGY); SPORES; SPRAY DRYING

Page Count: 321

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-112301

Site Holding: CB DT DW 20991

AD Number: 025235

Title: Particle Size Technology.

Author(s): Kemler, E. N. LaJoy, M. H. Kemler, E. N., Jr.

Report Number:

Publish Date: 19530909

Abstract: The scientific approach to the study of the behavior of small particles might be considered to have started over a hundred years ago with the development of Stokes' Law. His initial studies were restricted to the study of

falling spheres for obvious mathematical reasons. Stokes' Law gives a relation between velocity of fall of particles, viscosity, and particle diameter. Stokes' Law permits the measuring of either of the three quantities if the other two are known. The falling ball has been used for measuring viscosity. Of interest in this study is the inverse problem of either predicting terminal velocity of fall or particle size. If particles were of a fixed geometrical configuration, the analysis or measurement of size by such an experimental means would be feasible. Their physical measurement would also be possible. Fortunately, the methods apply on a statistical basis even though the particles are irregular in shape. In scientific studies, the physical dimensions or characteristics of particles are very significant. In most industrial applications these dimensions or equivalent characteristics such as surface area are useful. The ultimate objective of any study of the particle characteristics are of interest only insofar as they show a relationship to properties or performance of the material under study. In many fields particle size control has been found to be an effective method for controlling the quality of a product. In many such cases both size and size distribution are used as a basis for control.

Descriptive Note: Technical Report No. 1233

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: LABORATORY EQUIPMENT; MEASUREMENT; PARTICLES; SENSES (PHYSIOLOGY)

Page Count: 201

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-112468

Site Holding: CB DW 528675

AD Number:

Title: Proposed Wind Measurement Study.

Author(s): Bartholomew, F. L.

Report Number:

Publish Date: 19530320

Abstract: At General Mills, Inc. the author has developed two types of inexpensive balloons for carrying instruments upon a constant pressure surface for the measurement of meteorological phenomena. These would be ideally suited to the problem of accumulating data for a study of the wind up to the 700 mb surface, carrying the Signal Corps remitter. Investigations into the materials and processes best suited to produce a balloon of the desired specifications lead to two materials which qualify (Mylar and Saran). The processes for making balloons of Mylar and Saran at substantial reduction in cost have not yet been developed to the production stage.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only. This document contains export-controlled technical data.

Subject Keywords: BALLOONS; DUCT APPENDIX; DUCTS; FLIGHT SPEED INDICATORS; FLIGHT TESTING; HIGH ALTITUDE; ISOBARS (PRESSURE); METEOROLOGY; P-160 BALLOON; POLYETHYLENE PLASTICS; PRESSURIZATION; RADAR TRACKING; SV-180 BALLOON; WIND; WIND VELOCITY

Page Count: 59

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-112790

Site Holding: CB DW 506012

AD Number:

Title: Fine Grinding Project.

Author(s): Melton, D. F. Mckenzie, R. J. Nash, J. H.

Report Number:

Publish Date: 19530303

Abstract: This report contains technical information concerning the facilities, personnel, and a bibliography that was begun on the particle size measurement and distribution. The following items were developed: the Tanner grinder, the aerophilometer, an equipment procurement program and dextrin.

Descriptive Note: Monthly Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: AEROPHILOMETER; ASCORBIC ACID; CHEMICAL ELEMENTS; DEXTRINS; EQUATIONS; GLUCOSE; MOLECULES; PARTICLE SIZE; PECTINS; THIOUREA

Page Count: 23

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-112791

Site Holding: CB DW 506011

AD Number:

Title: Fine Grinding Report.

Author(s): Melton, D. F.

Report Number: 1176

Publish Date: 19530227

Abstract: GMI will work on a simulant material containing serratia marscesens. A diluent composed of dextrin, ascorbic acid, thiourea, ammonium chloride, and water was developed to resuspend. Drying by lyophilization or spray drying was used to produce particles about 10 micron diameter. This is done to study the grinding principles and processes. A literature search was also conducted in the following areas: 1) sizing of liquid and solid matter; 2) collection and classification of solid particles; 3) particle size determination; 4) sterilization; 5) measurement of temperature of particles; 6) measurement of humidity of particles; and 7) environmental control during storage. People in the following fields were contacted: physics, bacteriology, mechanical engineering, chemistry, and technical administration.

Descriptive Note: Monthly Progress Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only; Other requests for this document shall be referred to Engineering Research and Development Department, 2003 East Hennepin Avenue, Minneapolis, MN.

Subject Keywords: BAROMETRIC PRESSURE; HUMIDITY; PARTICLE SIZE; PARTICLES; SERRATIA MARCESCENS; SIMULANTS; TEMPERATURE; VIABILITY

Page Count: 10

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes: Tables.

CBRNIAC Number: CB-114158

Site Holding: CB DW 23199

AD Number:

Title: Fine Grinding Project. Volume 1: Summary Report.

Author(s): Gaalswyk, A. Jones, S. P.

Report Number:

Publish Date: 19541130

Abstract: A study was made of the theoretical aspects of fine grinding. Considerations were given to particle dynamics and associated trajectories of particles, insofar as their impingement efficiencies are concerned. The fracture characteristics of small particles were investigated and comparison was made with experimental results and those predicted by theory. Measurements were made of physical properties of Sm material which are pertinent to grinding characteristics and viability control.

Descriptive Note: Final Report Volume 1

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 92
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-114159
Site Holding: CB DW 23200
AD Number:
Title: Fine Grinding Project. Volume 2: Survey and Evaluation of Commerical Mills.
Author(s): Aufderheide, C. J. Gear, E. C.
Report Number:
Publish Date: 19541130
Abstract: A study was made of the theoretical aspects of fine grinding. Considerations were given to particle dynamics and associated trajectories of particles, insofar as their impingement efficiencies are concerned. The fracture characteristics of small particles were investigated and comparison was made with experimental results and those predicted by theory. Measurements were made of physical properties of Sm material which are pertinent to grinding characteristics and viability control.
Descriptive Note: Final Report Volume 2
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 209
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-114160
Site Holding: CB DW 23201
AD Number:
Title: Fine Grinding Project. Volume 3: Collection and Classification.
Author(s): Mcgillicuddy, J. L. Aufderheide, C. J.
Report Number:
Publish Date: 19541130
Abstract: A study was made of the theoretical aspects of fine grinding. Considerations were given to particle dynamics and associated trajectories of particles, insofar as their impingement efficiencies are concerned. The fracture characteristics of small particles were investigated and comparison was made with experimental results and those predicted by theory. Measurements were made of physical properties of Sm material which are pertinent to grinding characteristics and viability control.
Descriptive Note: Final Report Volume 3
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords:
Page Count: 159
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-114161
Site Holding: CB DW 23202

AD Number:

Title: Fine Grinding Project. Volume 4: Material Evaluation.

Author(s): Gaalswyk, A. Palm, J. D. Nask, J. H. Schenck, G. A.

Report Number:

Publish Date: 19541130

Abstract: A study was made of the theoretical aspects of fine grinding. Considerations were given to particle dynamics and associated trajectories of particles, insofar as their impingement efficiencies are concerned. The fracture characteristics of small particles were investigated and comparison was made with experimental results and those predicted by theory. Measurements were made of physical properties of Sm material which are pertinent to grinding characteristics and viability control.

Descriptive Note: Final Report Volume 4

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords:

Page Count: 170

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-114162

Site Holding: CB DW 23203

AD Number:

Title: Fine Grinding Project; Volume 5: Theoretical Aspects of Fine Particle Production.

Author(s): Fitz, C. D. Nash, J. H.

Report Number:

Publish Date: 19541130

Abstract: A study was made of the theoretical aspects of fine grinding. Considerations were given to particle dynamics and associated trajectories of particles, in so far as their impingement efficiencies are concerned. The fracture characteristics of small particles were investigated and comparison was made with experimental results and those predicted by theory. Measurements were made of physical properties of Sm material which are pertinent to grinding characteristics and viability control.

Descriptive Note: Final Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: BIOLOGICAL AGENTS; DENSITY; EQUATIONS; FILTERS; PARTICLES; TESTS AND EVALUATION; VELOCITY; VIABILITY; VISCOSITY

Page Count: 365

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-115194

Site Holding: CB DT DW F00079

AD Number: 121925

Title: Fine Grinding Study.

Author(s): Gaalswyk, Arie Fitz, C. D. McGillicuddy, J. H. Nash, J. H. Palm, J. D. Westoon, R. W. Olson, R. K. Brandsborg, P. D.

Report Number:

Publish Date: 19551108

Abstract: The highlight of the current report period has been the convincing demonstration of the effectiveness of both Development Classifiers DC-1 (Superior Air Centrifuge), and DC-II (Wolf Classifier) in classifying ground Sm into two size fractions. A transparent plexiglass model of the Spinco-Tanner mill is entering the group to study visually the various flow patterns that develop at certain "critical" speeds.

Descriptive Note: Bimonthly Report, 1 Aug-30 Sep 55
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; 8 Nov 55. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center, MD.
Subject Keywords: BIOLOGICAL AEROSOLS; DISPERING; FINES; FLOW FIELDS; GRINDING; VIRULENCE
Page Count: 88
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-115195
Site Holding: CB DT DW F00078
AD Number: 121924
Title: Fine Grinding Study.
Author(s): Fitz, C. D. Gaalswyk, A.
Report Number:
Publish Date: 19550826
Abstract: A description is given of the Kikro-Atomizer mill system as modified to enable more accurate measurements and control. Studies on the mechanics of grinding with the Spinco-Tanner mill have revealed some interesting transitions in internal pressure and cover consumption with changing angular velocity. It has been learned that classifiers of the "Wolf" type, previously discussed, are now commercially available in Germany. A study is in progress on the variation in shape of Sm particles with size. An attempt to make size analyses with the Whitby Centrifuge on samples of Lg sent to us by Camp Detrick was only moderately successful.
Descriptive Note: Bimonthly Report, 1 Jun-31 Jul 55
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; 26 Aug 55. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center, MD.
Subject Keywords: GRINDING
Page Count: 40
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-115196
Site Holding: CB DT DW F00077
AD Number: 121923
Title: Fine Grinding Study.
Author(s): Fitz, C. D. Gaalswyk, A. Nash, J. H. McGillicuddy, J. Palm, J. D.
Report Number:
Publish Date: 19550713
Abstract: The experimental determination of particle trajectories and impingement efficiencies of different shaped obstructions has now been completed. Analyses indicate higher impingement efficiencies with the concave obstructions, but associated with it a noticeably lower impingement velocity. Certain alterations in and additional facilities for the Micro-Atomizer mill are nearing completion a The Tanner-Spinco mill is being utilized for experimental investigation of a number of basic features relevant to an understanding of grinding characteristics. An exponential approximation of collection efficiency curves has provided a parametric representation giving a measure of classification processes. it has been experimentally demonstrated that there is a definite decrease in viability with product particle size. The decrease is suitably predicted by a theory previously postulated. A study has been initiated to determine variation of shape with size in order to gain a better understanding of the loss of viability with particle size.

Descriptive Note: Bimonthly Report, 1 Apr-31 May 55
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors; Administrative/Operational Use; Jul 55. Other requests for this document shall be referred to Chemical Corps, Army Chemical Center, MD.
Subject Keywords: GRINDING
Page Count: 72
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-116288
Site Holding: CB DT DW 506013
AD Number: 090538
Title: Velocity Departures from Geostrophic Flow as Measured from Constant Level Balloon Data.
Author(s): Giles, Keith C. Peterson, Roy E.
Report Number: AFCRL-TN56 269
Publish Date: 19560210
Abstract: Constant level balloon data are used to compute 89 smoothed hourly values of velocity, and a corresponding number of values of the balloon geostrophic velocity are obtained by considering the accelerations. These values are then compared with geostrophic winds computed from constant pressure maps. It is found that the direction of the balloon velocity approximates that of the geostrophic velocity very closely (with a probable error of plus or minus 7.2 degrees) and that the magnitude of the balloon velocity can be used by a regression equation to estimate the geostrophic speed.
Descriptive Note: Technical Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN
Distribution Statement: Distribution limited to US Gov't agencies and their contractors.
Subject Keywords: MEASUREMENT; METEOROLOGICAL BALLOONS; VELOCITY; WIND
Page Count:
CB Collection: UA
Media Type: PDF
Document Classification: U
Supplemental Notes:

CBRNIAC Number: CB-119864
Site Holding: CB DW 506387
AD Number:
Title: Project 2.11 for Operation Hardtack.
Author(s): Pankow, P. A. Skoog, E. L.
Report Number: B-1060
Publish Date: 19581023
Abstract: General Mills designed and flew a model 23-3-5 AERO-CAP to support instrumentation for the Army Chemical Center at the Eniwetok Proving Grounds. The principal of an aerodynamically shaped balloon was used to support instruments in a relatively fixed position in 25 MPH winds and at heights up to 1500 feet. The results of each flight are recorded in Appendix A.
Descriptive Note: Final Report
Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV
Distribution Statement: Distribution limited to DoD agencies only.
Subject Keywords: AEROCAP; AERODYNAMIC DRAG; AERODYNAMIC LIFT; AERODYNAMICS; BALLOONS; HELIUM; MOORING; NYLON; THEODOLITES; WIND TUNNEL TESTS
Page Count: 39
CB Collection: UA
Media Type: PDF
Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-122067

Site Holding: CB DW 33941

AD Number:

Title: Review of Research in Fine Particle Physics.

Author(s): Nash, John H.

Report Number:

Publish Date: 19600401

Abstract: This report summarizes research work on an upper atmosphere monitoring program. Because of the radioactive debris deposited in the upper atmosphere as a result of nuclear weapons testing, a program was initiated to evaluate this potential health hazard. Evaluation was in terms of aerial concentration as well as particle size distribution. The program deals with the following main areas of investigation: 1) collection of particulate matter in the upper atmosphere by means of balloon-borne sampling devices; 2) determination of particle size distribution of the particulate matter; and, 3) determination of air volume sampled. Most of the sampling has been done with fibrous filter mats although other techniques for collecting particulate matter and determining its particle size distribution have been investigated.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; 1 Oct 1988. Other requests for this document shall be referred to Commander, US Army Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022-5000.

Subject Keywords: AEROSOLS; AIRBORNE; AIRBORNE RADIOACTIVE PARTICLES; ATMOSPHERIC PHYSICS; BALLOON EQUIPMENT; COLLECTING METHODS; DEBRIS; HOMOGENEITY; PARTICLE SIZE DISTRIBUTION; PARTICLES; PHYSICS; PRESSURE DROP APPARATUS; RADIOACTIVE DEBRIS; RADIOACTIVE WASTES; SAMPLING; SCHEMATIC DIAGRAMS; STRATOSPHERIC PARTICLE CONCENTRATION; TEST AND EVALUATION; VAPORNEFRIN NEBULIZER; VELOCITY

Page Count: 40

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-122659

Site Holding: CB DT DW 503599

AD Number: 264961

Title: Fundamental Studies of the Dispersibility of Powered Materials.

Author(s): Nash, J. H. Leiter, G. G. Johnson, A. P.

Report Number: 2229

Publish Date: 19610930

Abstract: A technique is described for studying the manner in which local bulk density of a column of powder compressed in a cylinder varies with distance from the compressing piston. Measurements were made on each of the 3 base powders (saccharin, Carbowax 6000 and Span 60). The effect of humidity on properties of the three base powders was investigated by conducting a series of tests including shear strength, disc lifting, aerosol decay and electrostatic charge analysis on powder samples. Fourteen different deagglomerant agents were evaluated by measuring their shear strength at a compressive load of 5305 dynes/sq cm. CabO-Sil had the lowest shear strength of all the agents tested.

Descriptive Note: Study

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: ADDITIVES; AEROSOLS; CARBOHYDRATES; DENSITY; DIFFUSION; ELECTROSTATICS; ETHYLENES; GLYCOLS; HUMIDITY; MECHANICAL PROPERTIES; ORGANIC COMPOUNDS; PARTICLES; POWDERS; PRESSURE; SCATTERING; STEARATES; TEST EQUIPMENT; TEST METHODS; THEORY

Page Count: 1

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

CBRNIAAC Number: CB-122694
Site Holding: CB DT DW 503598
AD Number: 260740
Title: Fundamental Studies of the Dispersibility of Powdered Materials.
Author(s): Nash, J. H. Leiter, G. G. Zeller, H. W.
Report Number:

Publish Date: 19610630

Abstract: A technique involving the use of a 2-in.-diam fluid energy mill was devised for blending and deagglomerating powders. A study of average bulk density as a function of plug length and compressive load was made on each of the 3 base powders (saccharin, Span 60, and Carbowax 6000). The effect of removal of adsorbed gases and vapors was investigated by disk lifting tests on samples of the 3 base powders under normal laboratory conditions and under high vacuum conditions (0.00002 mm Hg). A technique involving stratified layers was devised for the purpose of studying powder displacement during disk-lifting tests. An improved technique for measuring shear strength of powders is described. Aerosol decay tests were made on samples of the same powders on which shear strength measurements were made. A comparison of results indicates that there is little correlation. A theoretical study was made to determine energy expended in dispersing an aerosol. Electrostatic charge analyses were made on aerosols of Span 60 and Carbowax 6000.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: ADDITIVES; ADHESION; ADSORPTION; AEROSOLS; CARBOHYDRATES; ELECTROSTATICS; ETHYLENES; FLUID FLOW; GLYCOLS; ORGANIC COMPOUNDS; PARTICLES; POLYMERS; POWDERS; SCATTERING; SHEAR STRESSES; STEARATES; SULFIMIDES; TENSILE PROPERTIES; TESTS

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-122726
Site Holding: CB DT DW 503597
AD Number: 255484
Title: Fundamental Studies of the Dispersibility of Powdered Materials.
Author(s): Nash, J. H. Zeller, H. W. Leiter, G. G.
Report Number: 2183
Publish Date: 19610331

Abstract: Factors affecting the flow and dispersibility of organic powders in the 2-5 micron size range have been the subject of investigation of this study. The tests reported herein were conducted on samples of finely ground saccharin, Carbowax 6000 and Span 60 or on samples of these powders containing various additives. Several different types of tests were conducted including the following: bulk tensile strength tests, shear strength tests, disk lifting tests conducted under high vacuum conditions and under laboratory conditions to study effect of removal of adsorbed vapors and gases, tests to determine energy required to disperse an aerosol and electrostatic charge analysis.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: ADDITIVES; ADSORPTION; AEROSOLS; CARBOHYDRATES; DIFFUSION; ELECTROSTATICS; ETHYLENES; FLUID FLOW; GLYCOLS; MECHANICAL PROPERTIES; ORGANIC COMPOUNDS; POLYMERS; POWDERS; SCATTERING; STEARATES; SULFIMIDES; TENSILE

PROPERTIES; TESTS; VAPORS

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-125346

Site Holding: CB DT DW 506379

AD Number: 288249

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Nash, J. H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19621031

Abstract: Finely ground Carbowax 6000 samples, treated with 20 surface active agents of non-ionic, anionic, cationic and amphoteric types, were tested for shear strength, dispersibility and electric charge. Shear strength tests showed all samples, with the exception of those treated with Span 60 (non-ionic agent), have lower shear strengths than the control. The three samples with lowest values had all been treated with cationic-type agents. Dispersibility tests indicate amphoteric agents have little or no effect, and anionic and cationic agents have detrimental effects. Electrostatic charge tests indicate no effect for samples treated with non-ionic agents; samples treated with anionic agents were more negatively charged than the control; and, samples treated with cationic agents were equally divided between positively and negatively charged.

Descriptive Note:

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: AEROSOLS; ELECTROSTATICS; MEASUREMENT; PARTICLES; POWDERS; SCATTERING; SHEAR STRESSES; SURFACES

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-125483

Site Holding: CB DT DW 503601

AD Number: 275264

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Nash, J. H. Leiter, G. G. Johnson, A. P.

Report Number: 2276

Publish Date: 19620503

Abstract: The investigations reported deal mainly with the measurement of physical properties of three base powders (saccharin, Carbowax 6000 and Span 60) containing various amounts of selected anti-agglomerant agents (Cab-O-Sil, Alon-C, P-25 and tri-calcium phosphate). Shear strength, dynamic angle of repose, bulk density, dispersibility and electrostatic charge studies were made. Results indicated that Cab-O-Sil is the most effective anti-agglomerant agent. Investigations were also conducted to determine effect of rate of force application and effect of powder bed thickness on powder shear strength. Results indicated that powder shear is independent of rate of force application over the range 4,740 - 142,000 dynes/sec and is nearly independent of powder bed thickness over the range 1.7 - 3.3 mm. Electrostatic charge tests were made on samples of saccharin and Carbowax 6000 treated with eleven different surface active agents. Results were inconclusive. (Author)

Descriptive Note: Quarterly Progress Report No. 7, 3 Jan-3 Apr 62

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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

Subject Keywords: ADDITIVES; ADHESION; ADSORPTION; AEROSOLS; BENZENES; CARBOHYDRATES; DENSITY; DIFFUSION; ELECTROSTATICS; ETHYLENES; GLYCOLS; ORGANIC COMPOUNDS; PARTICLES; PHYSICAL PROPERTIES; POLYMERS; POWDERS; PRESSURE;

SCATTERING; SHEAR STRESSES; STEARATES; SULFIMIDES; SURFACE PROPERTIES;
TEMPERATURE; TENSILE PROPERTIES; VAPORS

Page Count: 64

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-125502

Site Holding: CB DT DW 503600

AD Number: 271722

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Nash, J. H. Leiter, G. G. Johnson, A. P.

Report Number:

Publish Date: 19620215

Abstract: Electrostatic charge analyses were made on samples of the three base powders (saccharin, Carbowax 6000 and Span 60) which had been pre-conditioned at various relative humidities ranging from less than 1 to 75%. A study was made using an electron microscope of the effects of the addition of a small amount of (Adhesion.) (Saccharides, Sulfimides, Polymers, Ethylenes, Glycols, Stearates.) Electron microscopy. Identifiers: Carbowax 6000, Span 60. Electrostatic charge analyses were made on samples of the three base powders (saccharin, Carbowax 6000 and Span 60) which had been pre-conditioned at various relative humidities ranging from less than 1 to 75%. A study was made using an electron microscope of the effects of the addition of a small amount of Cab-O-Sil on the properties of Carbowax 6000. The effect of concentration of Cab-O-Sil on properties of the three base powders was investigated by performing bulk density tests and dispersibility tests. A group of 13 different anti-agglomerant agents was evaluated by conducting shear strength tests on samples of the three base powders containing 1% by weight of each of the agents. The most promising agents were Cab-O-Sil, Alon-C, P-25 and Tri-Calcium Phosphate. The effect of n-butylamine vapors adsorbed on the surface of Carbowax 6000 particles was investigated. It was found that the formation of linear aggregates in an electric field can be completely eliminated by an adsorbed layer of n-butylamine. (Author)

Descriptive Note: Technical Report No. 2256

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

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

Subject Keywords: ADDITIVES; ADHESION; ADSORPTION; AEROSOLS; CARBOHYDRATES; DENSITY; DIFFUSION; ELECTRON MICROSCOPY; ELECTROSTATICS; ETHYLENES; GLYCOLS; HUMIDITY; MECHANICAL PROPERTIES; ORGANIC COMPOUNDS; PARTICLES; PHYSICAL PROPERTIES; POLYMERS; POWDERS; SCATTERING; SHEAR STRESSES; STEARATES; SULFIMIDES; SURFACE PROPERTIES; TENSILE PROPERTIES; VAPORS

Page Count: 1

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-125714

Site Holding: DW 503602

AD Number:

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Nash, J. H. Leiter, G. G. Johnson, A. P.

Report Number: GMI-2315

Publish Date: 19620725

Abstract: This report deals in the main with an investigation of effects of surface active agents and adsorbed foreign vapors on properties of fine organic powders. Twenty different surface active agents representing the four main types (non-ionic, anionic, cationic and amphoteric) were tested to determine their effects on finely ground saccharin. Powder samples treated with various agents were tested for shear strength, dispersibility and electrostatic charge. The most significant finding was the fact that cationic agents definitely improve the dispersibility characteristics of

saccharin. The effects of adsorbed phenol vapors on properties of three base powders were investigated, with no beneficial effects on powder properties observed. A technique for standardizing the light source on the aerosol decay chamber is described. Particle size analyses were made on batches of finely ground saccharin, indicating a mass median diameter of about 6.9 microns.

Descriptive Note: Quarterly Progress Report No. 8

Corp Author Name: GENERAL MILLS INC ST PAUL MINN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: ADSORPTION; AEROSOLS; DECAY; DISPERSION RELATIONS; ELECTROSTATIC CHARGE; FLOW; ORGANIC MATERIALS; PARTICLE SIZE; PHENOLS; POWDERS; SHEAR STRENGTH; VAPORS

Page Count: 42

CB Collection:

Media Type:

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-126005

Site Holding: CB DW 38458

AD Number:

Title: Investigation of an Air Ejector Pump for High Altitude Sampling Systems.

Author(s): McFarland, A. R.

Report Number:

Publish Date: 19620515

Abstract: The air ejector pump has been investigated under Contract AT(11-1)-401 with the US Atomic Energy Commission. Its application as an air mover in balloon-borne stratospheric sampling systems is a new idea having several potentially important advantages. At the present time there is an urgent need for sampling systems capable of operating at altitudes significantly above 100,000 feet. Aside from basic studies involving micrometeorites and naturally occurring debris, this requirement is of special importance because of the potential hazards to man arising out of the re-entry of SNAP-series satellite vehicles and the need for information relative to high-altitude nuclear weapons tests. Present balloon-borne sampling systems are heavy because of the batteries required to operate large-volume, d-c motor blowers. These motors frequently overheat and fail, especially when operated at sampling altitudes above 100,000 feet. As a consequence, duplicate sampling systems are often flown on one balloon, increasing reliability through redundancy but doubling system weight. In a sampling system utilizing an air ejector pump, the power supply would be a tank of compressed gas. Theoretical calculations verified by experimental tests indicate that such a system will have the following-advantages: Increased reliability, lighter weight and lower cost.

Descriptive Note: Technical Report No. 2277

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: AIR EJECTORS; BALLOONS; DEBRIS; EQUATIONS; HAZARDS; HIGH-ALTITUDE NUCLEAR WEAPONS TESTS; HUMANS; MICROMETEORLOGY; REENTRY VEHICLES; SAMPLING; SATELLITE VEHICLES; SATELLITES; SNAP-SERIES SATELLITES; STRATOSPHERE; THEORY

Page Count: 61

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAAC Number: CB-126099

Site Holding: CB DW 37298

AD Number:

Title: Studies of Virus Aerosols.

Author(s): Greene, V. W. Lundgren, D. A. Anderson, A. A.

Report Number: R1075

Publish Date: 19620523

Abstract: The objectives in this proposal are to study, on a laboratory scale, the problems associated with

propagation, purification, aerosolization, and collection of virus suspensions. Further objectives are to ascertain the influence of certain environmental variables on the persistence, dissemination, and viability of these aerosols. Ultimately the data from this study will be useful in the design of sampling systems for BW monitoring programs, and in knowledge of microbial aerosols and airborne viruses.

Descriptive Note: Proposal R-1075

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to US Gov't agencies only; Test and Evaluation; Nov 1988. Other requests for this document shall be referred to Commander, US Army Dugway Proving Ground, Attn: Technical Library, Dugway, UT 84022-5000.

Subject Keywords: AEROSOLS; AIRBORNE VIRUSES; BACTERIOPHAGE SUSPENSIONS; BACTERIOPHAGES; BIOLOGICAL AEROSOLS; DISSEMINATION; MICROBIOLOGY; MICROMETEOROLOGY; PARTICLES; SAMPLING; VIRUS DISEASES; VIRUSES

Page Count: 38

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-126424

Site Holding: CB DT DW 39532

AD Number: 415902

Title: Fundamental Studies of the Dispersibility of Powdered Materials.

Author(s): Nash, J. H. Leiter, G. G. Johnson, A. P. Stender, D. Zeller, H. W.

Report Number: REPT-2381

Publish Date: 19630315

Abstract: This is a fundamental study of factors affecting the flow and dispersibility of finely divided organic powders. Most of the investigations pertain to three base powders: saccharin, Carbowax 6000, and Span 60. These powders were chosen to represent crystalline, waxy, and gummy types of powders, respectively. Late in the program, a fourth powder (egg albumin) was added to the list of powders to be investigated. The preparation of powders including grinding, deagglomeration, blending, coating with surface active agents, etc. is discussed. The various tests for measuring physical properties of powders including particle size distribution, shear strength, bulk tensile strength, bulk density, dynamic angle of repose, dispersibility, and electrostatic charge are described. The major studies are: (1) bulk tensile strength tests, (2) effects of humidity on powder properties, (3) effects of antiagglomerant agents on powder properties, (4) mechanism by which Cab O-Sil functions, (5) effects of surface active agents on powder properties, (6) effects of adsorbed foreign vapors on powder properties, (7) effects of removal of adsorbed gases and vapors, (8) energy required to disperse a powder sample, (9) properties of compacted powders, and (10) egg albumin studies.

Descriptive Note: Final Report, 3 Jun 60-31 Jun 63

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: ADSORPTION; ALBUMINS; BULK DENSITY; COATINGS; CRYSTALS; DATA; DENSITY; EGGS; ELECTRON; ELECTROSTATICS; EQUATIONS; GASES; GRINDERS; HUMIDITY; LIQUIDS; ORGANIC MATERIALS; PARTICLE SIZE; PHYSICAL PROPER; POWDERS; SEDIMENTATION; SHEAR; STRAIN GAGES; TENSILE PROPERTIES; TEST EQT; TEST METHODS; THEORY; WAXES

Page Count: 255

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-126532

Site Holding: CB DT DW 39858

AD Number: 400360

Title: A Study of High Altitude Water-vapor Detectors.

Author(s): Rohrbough, S.

Report Number: AFCRL-63-407

Publish Date: 19630331

Abstract: This report describes the research and engineering required to prepare a sampling system for making water-vapor and index of refraction measurements in the atmosphere. It covers the instrumentation, equipment testing, flight description, and results of the flight, and includes conclusions and recommendations. The purpose of the flight to 80,700 ft was to correlate data received from several different types of water-vapor indicators. These included four hygrometers (two alpha type and two optical type) and two gravimetric water-vapor traps (the Dual Molecular Sieve unit and Goldsmith Vapor Trap). In addition, two microwave refractometers were flown to see if the two units functioned properly under operational conditions and how their data compared with the hygrometer data in the lower altitudes. Index of refraction data were obtained only from one unit: these followed published data for the first portion of the flight, but wandered radically during the latter half. The two alpha hygrometers functioned properly during ascent, but their data were erroneous because of contamination during float and descent. Their data are plotted in both graphical and tabular form. The Goldsmith Vapor Trap sampling was at a slower rate than expected but yielded a mixing ratio of 0.09 +/- 0.01 g per kg over an altitude range of Z8 to 78 mb.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: BALLOONS; DETECTION; FLIGHT; GRAVIMETRIC ANALYSIS; HIGH ALTITUDE; HYGROMETERS; LAUNCHING; REFRACTIVE INDEX; REFRACTOMETERS; TEMPERATURE

Page Count: 35

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-127698

Site Holding: CB DW 39859

AD Number:

Title: Study of Large-volume Impactor for High-altitude Aerosol Collection.

Author(s): McFarland, A. R. Zeller, H. W.

Report Number:

Publish Date: 19630401

Abstract: An experimental investigation has been conducted to determine the performance characteristics of a multiple-jet impactor for sampling stratospheric aerosols at altitudes between 100,000 and 150,000 ft. Tests were made at pressures of 1 to 15mm Hg and with aerosols of 0.055, 0.081, and 0.125 microns diameter. Primary variables studied included impaction parameter, jet Reynolds number, clearance ratio, and surface treatment. Data were obtained for a single jet impactor with the same nozzle shape as that of the multiple jet impactor. Results show that the impaction efficiency decreases with jet Reynolds number for values of the Reynolds number between 18 and 100, whereas it is essentially constant for Reynolds numbers greater than 100. Collection efficiency was investigated at three clearance ratios: 0.34, 0.53, and 1.0. Results comparing oil-coated with uncoated collectors show that maximum efficiency can be obtained with uncoated surfaces only at relatively low velocities. Comparisons are made between the performance of the multiple-jet impactor and that of single-jet impactors reported by other investigators.

Descriptive Note: Experimental Investigation

Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: AEROSOL GENERATORS; AEROSOLS; CLEARANCES; COLLECTORS; DENSITY; DRAG FORCE; EQUATIONS; GREASES; HIGH-ALTITUDE; IMPACT PREDICTIONS; KINETIC THEORY; LAMINAR FLOW; NOZZLES; PARAMETERS; PHOTOMICROGRAPHY; RATIOS; REYNOLDS NUMBER; TEST METHODS; VELOCITY; VISCOSITY; WIND TUNNELS

Page Count: 102

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-127987

Site Holding: CB DT DW 528674

AD Number: 602851

Title: Tropical Upper Air Studies, Part I: Persistence of the Daily Stratospheric Winds in the Tropics, Part II: Long-Period Wind Fluctuations in the Tropics.

Author(s): Belmont, A. D. Shen, W. C. Dartt, D. G.

Report Number:

Publish Date: 19640401

Abstract: The persistence of tropical 50 mb daily wind direction and speed along with the daily zonal component was computed to determine the interval over which a wind observation may be regarded as 'independent'. Monthly means of the zonal component were determined using only 'independent observations' and then compared to monthly means based on all available data. Long period fluctuations of the stratospheric zonal winds in the tropics were examined to describe variations in the observed monthly mean patterns. The quasi-biennial and annual fluctuations account for practically all the observed wind variability; the meridional and vertical variation of the amplitudes as well as the difference in phase propagation downward of each of these two components cause the complex interference patterns that are observed with time at various subtropical and tropical stations.

Descriptive Note: Final Report, 30 Mar 62-30 Mar 64

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

Distribution Statement: Approved for Public Release; Distribution Unlimited.

Subject Keywords: ATMOSPHERIC MOTION; ATMOSPHERIC TEMPERATURE; CORRELATION TECHNIQUES; ENERGY; HARMONIC ANALYSIS; METEOROLOGICAL CHARTS; METEOROLOGICAL PHENOMENA; OSCILLATION; SPECTROSCOPY; STOCHASTIC PROCESSES; STRATOSPHERE; TROPICAL REGIONS; TROPOSPHERE; VELOCITY; WEATHER FORECASTING; WIND

Page Count: 133

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-160807

Site Holding: CB DW 529145

AD Number:

Title: Turbulence And Atmospheric Electricity.

Author(s): Ruhnke, Lothar H.

Report Number:

Publish Date: 19010101

Abstract: This paper summarizes investigations in atmospheric electricity, specifically fluctuations of the electric field. From the research it is advisable to correlate the fluctuations of the electric field with turbulent fluctuations in the air and establish the frequency range where the highest degree of cross correlation in the spectrum exists. As a first step one should measure the frequency spectrum of electric field and air fluctuations and determine the cross spectrum. As a first step in this direction measurements should be taken of the frequency spectrum of electric field and air fluctuations and determine the cross spectrum. It should then be possible to determine the coefficient of turbulence from the field fluctuations over a suitable frequency range. Because the measurement of the electric field fluctuations are easy, reliable, and directly adaptable for electronic processing, it is hoped that the instrumentation to determine the turbulent coefficient is simple in design, and rugged and reliable in operation.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC ST PAUL MINN ELECTRONICS DIV

Distribution Statement: Distribution limited to DoD agencies only.

Subject Keywords: ATMOSPHERIC ELECTRICITY; CONDUCTIVITY; CROSS CORRELATION; CROSS SPECTRUM; CURRENT DENSITY; ELECTRIC FIELDS; EMPIRICAL FORMULA; SPACE CHARGE; TURBULENCE; TURBULENCE COEFFICIENT; TURBULENT FLUCTUATIONS

Page Count: 4

CB Collection: UA

Media Type: PDF

Document Classification: U

Supplemental Notes:

CBRNIAC Number: CB-161129

Site Holding: DW 42445

AD Number:

Title: Positive Pressure CB Collective Protection Field Shelter.

Author(s):

Report Number:

Publish Date: 19010101

Abstract: This document presents operational and design concepts for a troop shelter. The shelter will employ filtered air under positive pressure to prevent entrance of contaminants, thus allowing performance of duties which require a CB hazard-free atmosphere. The system will be used in all types of climate and terrain, is a new item, and will be air-droppable. Comparative data along with cut-away diagrams are given.

Descriptive Note: Technical Report

Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MINN

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AD Number:

Title: Description of the Dry Agent Line Source Disseminator Developed by General Mills, Inc.

Author(s):

Report Number:

Publish Date: 19630125

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Corp Author Name: GENERAL MILLS INC ST PAUL MN ELECTRONICS DIV

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Author(s): Fenn, Gerald Upton, James Jarvis, George

Report Number:

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Corp Author Name: GENERAL MILLS INC MINNEAPOLIS MN MECHANICAL DIV

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Author(s):

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