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                                                                                                    ACCT: 888235001
                   INDEX: D61794330 CAT NO: AC423645000 PO NBR: CROSSGROVE-BETA-52714
                                                                                                                    Material Safety Data Sheet
N.N-Dimethvlformamide
MSDS# 07860
                                                        Section 1 - Chemical Product and Company Identification
  MSDS Name:
   N, N-Dimethylformamide
N,N-Dimetry roundings (Catalog Numbers: AC116220010, AC116220010, AC116220050, AC116220250, AC16779000 AC167790000, AC167790010, AC167790025, AC167795000, AC210580000, AC210580010, AC210580010, AC210580025, AC210580250, AC210580250, AC2105807000, AC326870010, AC326
                     AC219600010, AC219600025, AC219600040, AC326870000, AC236870010, AC32687002

AC326870025, AC326871000, AC326872500, AC326873000, AC3226870010, AC34687002

AC348430000, AC34843010, AC348430025, AC34710000, AC3227175000, AC34843002

AC354830025, AC408310000, AC408310000, AC408320000, AC408325000, AC423640010, AC423640250, AC4236402000, AC4236402000, AC4236402000, AC4236402000, AC423640000, AC423640010, AC423640250, AC423640000, AC423640010, AC4236402000, AC423640000, AC423640010, AC4236402000, AC423640000, AC423640000, AC423640000, AC423640000, AC423640000, AC4236400000, AC423640000, AC4236400000, AC423640000, AC4236000, AC42360000, AC4236000, AC4236000, AC4236000, AC4236000, AC4236000, AC4236000, AC
                   AC423640000, AC423640010, AC423640250, AC423645000, AC61032010, AC61032019 AC61032019, AC61032050, AC61032050, AC610321000, AC61032115, AC61032215, AC61032200, AC610322100, AC610321000, AC610321000, AC610321000, AC610321000, AC610321000, AC610321000, AC61032000, AC610321000, AC61032000, AC610321000, AC6107310100, AC6107301000, AC610731150, AC610732000, AC610731150, AC610732000, AC610731150, AC6107321000, AC610731150, AC610732000, BP11607819, D119-20, D119-20, D119-4, D119-500, D11920LC, D119FB115, D119FB19, D
 eynonyms:
N.N-Dimethylmethanamide; DMF; Dimethylformamide.
Company Identification:
  Fisher Scientific
                                                                                                                                                   One Reagent Lane
                                                                                                                                                   Fair Lawn, NJ 07410
  For information in the US, call:
    201-796-7100
  Emergency Number US:201-796-7100
 CHEMTREC Phone Number, US: 800-424-9300
                                                                   Section 2 - Composition, Information on Ingredients
                                                                  68-12-2
  CAS#:
  Chemical Name: N, N-Dimethylformamide
                                                                  99-100
  EINECS#:
                                                             200-679-5
  Hazard Symbols:
  Risk Phrases:
     61 20/21 36
                                                                                                   Section 3 - Hazards Identification
                                                                                                                                     EMERGENCY OVERVIEW
  Warning! Flammable liquid and vapor. May cause liver damage. May be harmful if swallowed, inhaled, or absorbed through the skin. May cause harm to the unborn child. Causes eye, skin, and respiratory
   tract irritation.
  Target Organs: Liver, respiratory system, eyes, skin. Potential Health Effects
  Eye:
                                             Causes eve irritation.
  Skin:
                                             Causes skin irritation.
  Ingestion:
                                              May cause gastrointestinal irritation with nausea, vomiting and
                                             diarrhea. May cause liver damage.
   Inhalation:
                                              Causes respiratory tract irritation.
  Chronic:
                                              Prolonged or repeated skin contact may cause dermatitis. Chronic
                                            exposure may cause liver damage. May cause fetal effects based on animal studies.
                                                                                                             Section 4 - First Aid Measures
  Eyes:
                                            Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
  Skin:
                                            Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
   Ingestion:
                                              Call a poison control center. If swallowed, do not induce vomiting
                                             unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.
   Inhalation:
                                            Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration
                                              using oxygen and a suitable mechanical device such as a bag and a
                                              mask.
    Notes to Physician:
                                             Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures
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General Information:
                    nformation:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
                     along the ground and collect in low or confined areas.
Extinguishing Media:
                     ing media:
For small fires, use dry chemical, carbon dioxide, water spray or
alcohol-resistant foam. For large fires, use water spray, fog, or
alcohol-resistant foam. Water may be ineffective. Do NOT use
straight streams of water.
Autoignition Temperature:445 deg C ( 833.00 deg F)
 Flash Point:57 deg C ( 134.60 deg F)
Explosion Limits: Lower:2.2
Explosion Limits: Upper:15.2
NFPA Rating:
health: 2; flammability: 2; instability: 0;
                                            Section 6 - Accidental Release Measures
General Information:
                     Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
                    ARS:
Absorb spill with inert material (e.g. vermiculite, sand or earth),
then place in suitable container. Do not flush into a sewer. Clean
up spills immediately, observing precautions in the Protective
Equipment section. Remove all sources of ignition. Use a spark-proof
                      tool. Provide ventilation. A vapor suppressing foam may be used to
                     reduce vapors.
                                                   Section 7 - Handling and Storage
Handling:
                    Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Use with adequate ventilation. Do not pressurize, cut, weld, braze,
                     solder, drill, grind, or expose empty containers to heat, sparks or open flames. Avoid breathing vapor or mist.
Storage:
                     Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection
Engineering Controls:
                    Use process enclosure, local exhaust ventilation, or other Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Exposure Limits
                                                               ACGIH
                                                                                                                                    OSHA - Final PELs
        Chemical Name
                                                                                                         NIOSH
                                                                                          10 ppm TWA; 30
mg/m3 TWA 500
                                                                                                                                     10 ppm TWA; 30
    N,N-Dimethylformami 10 ppm; Skin -
                                                                                                                                     mg/m3 TWA
                                                  potential
                                                  significant
                                                                                          ppm IDLH
                                                  contribution to
                                                  overall exposure
                                                by the cutaneous
                                                 r oute
 OSHA Vacated PELs:
N, N-Dimethylformamide:
 10 ppm TWA; 30 mg/m3 TWA
Personal Protective Equipment
 Eves:
                                                  Wear chemical splash goggles.
 Skin:
                                                  Wear appropriate protective gloves to prevent skin
Clothing:
                                                  Wear appropriate protective clothing to prevent skin
                                                  exposure.
 Respirators:
                                                 A respiratory protection program that meets OSHA's 29
CFR 1910.134 and ANSI Z88.2 requirements or European
Standard EN 149 must be followed whenever workplace
conditions warrant respirator use.
                                       Section 9 - Physical and Chemical Properties
Liquid
clear, colorless
Physical State:
Color:
                                                            Faint, amine odor.
6 - 8 @ 20% aq.sol.
4.9 mbar @ 20 C
Odor:
 pH:
 Vapor Pressure:
 Vapor Density:
                                                             2.5 (air=1)
                                                             0.17 (butylacetate=1)
Evaporation Rate:
                                                                                                                                                                          4,044
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ACCT:

DATE: 06/29/06

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                                         CAT NO: AC423645000 PO NBR: CROSSGROVE-BETA-52714
                                              0.8 mPas @ 20 C
Viscosity
                                             153 deg C ( 307.40&F)
-61 deg C ( -77.80&F)
Not available
Boiling Point:
Freezing/Melting Point:
Decomposition Temperature:
Solubility in water:
                                              Soluble
Specific Gravity/Density:
Molecular Formula:
                                              0.94
                                              C3H7NO
Molecular Weight:
                                              73.09
                                    Section 10 - Stability and Reactivity
Chemical Stability:
                Stable at room temperature in closed containers under normal storage
                and handling conditions.
Conditions to Avoid:
                Ignition sources, excess heat.
Incompatibilities with Other Materials
               bilities with Other Materials
Strong oxidizing agents, ammonia, anhydrides, iron, phenols,
isocyanates, acids (mineral, non-oxidizing, e.g. hydrochloric acid,
hydrofluoric acid, muriatic acid, phosphoric acid), acids (mineral,
oxidizing, e.g. chromic acid, hypochlorous acid, nitric acid,
sulfuric acid), metals (alkali and alkaline, e.g. cesium, potassium,
sodium), metals and metal compounds (toxic, e.g. beryllium, lead
acetate, nickel carbonyl, tetraethyl lead), reducing agents (strong,
e.g. aluminum carbide, chlorosilane, hydrogen phosphide, lithium
hydride), carbontetrachloride, chlorinated hydrocarbons, organic
materials.
                 materials.
Hazardous Decomposition Products
Carbon monoxide, oxides of nitrogen, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization
Will not occur
                                  Section 11 - Toxicological Information
RTECS# :
CAS# 68-12-2: LQ2100000
LD50/LC50
RTECS: CAS# 68-12-2: Inhalation, mouse: LC50 = 9400
RTECS: CAS# 68-12-2: Inhalation, mouse: LC50 = 9440 mg/m3/2H; Inhalation, rat: LC50 = 3421 ppm/JH; Inhalation, rat: LC50 = 3421 ppm/3H; Inhalation, rat: LC50 = 1948 ppm/4H; Oral, mouse: LD50 = 2900 mg/kg; Oral, rabbit: LD50 = 5 gm/kg; Oral, rat: LD50 = 2800 mg/kg; Skin, rat: LD50 = 3.2 gm/kg; LD50 = 4720 mg/kg; Skin, rat: LD50 = 3.2 gm/kg;.
Carcinogenicity:
N,N-Dimethylformamide
          IARC: Group 3 (not classifiable)
Epidemiology:
No information found
Teratogenicity:
No information found
Reproductive:
No information found
Neurotoxicity:
No information found
Mutagenicity:
No information found
Other:
See actual entry in RTECS for complete information.

Section 12 - Ecological Information
Not available
Section 13 - Disposal Considerations
Chemical waste generators must determine whether a discarded chemical
is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate
classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.
                                      Section 14 - Transport Information
 US DOT
                                                  N.N-DIMETHYL-FORMAMIDE
        Shipping Name:
Hazard Class:
         UN Number:
                                                  UN2265
         Packing Group:
                                                  III
 Canada TDG
        Shipping Name:
Hazard Class:
                                                  N, N-DIMETHYLFORMAMIDE
         UN Number:
                                                  UN2265
 Packing Group: III
USA RQ: CAS# 68-12-2: 100 lb final RQ; 45.4 kg final RQ
                                      Section 15 - Regulatory Information
 US Federal
         TSCA
 CAS# 68-12-2 is listed on the TSCA Inventory.
 Health & Safety Reporting List
CAS# 68-12-2: Effective 4/13/89, Sunset 12/19/95
              Chemical Test Rules
 None of the chemicals in this product are under a Chemical Test Rule.
              Section 12b
 None of the chemicals are listed under TSCA Section 12b.
              TSCA Significant New Use Rule
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None of the chemicals in this material have a SNUR under TSCA.
None of the Chemitals in this material have a Swothern
CERCLA Hazardous Substances and corresponding RQs
CAS# 68-12-2: 100 lb final RQ; 45.4 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
               SARA Codes
CAS # 68-12-2: acute, flammable.
               Section 313
This material contains N, N-Dimethylformamide (CAS# 68-12-2, 99
100%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
                Clean Air Act:
CAS# 68-12-2 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depletors. This material does not contain any Class 2 Ozone depletors.
         Clean Water Act:
None of the chemicals in this product are listed as Hazardous
Substances under the CWA.

None of the chemicals in this product are listed as Priority
Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants
under the CWA.
         OSHA:
STATE
         N,N-Dimethylformamide can be found on the following state right to
          know lists: California, New Jersey, Pennsylvania, Minnesota,
         Massachusetts.
 California Prop 65
         California No Significant Risk Level:
None of the chemicals in this product are listed.
 European/International Regulations
         European Labeling in Accordance with EC Directives
 Hazard Symbols: T
 Risk Phrases:
                                           R 61 May cause harm to the unborn child. R 20/21 Harmful by inhalation and in contact with
                                            skin.
                                           R 36 Irritating to eyes.
 Safety Phrases:
                                           S 53 Avoid exposure - obtain special instructions
                                            before use.
                                           S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where
                                           possible).
 WGK (Water Danger/Protection)
                   CAS# 68-12-2: 1
 CAS# 68-12-2 is listed on Canada's DSL List
CAS# 68-12-2 is listed on Canada's DSL List
Canadian WHMIS Classifications: B3, D2A, D2B
This product has been classified in accordance with the hazard
criteria of the Controlled Products Regulations and the MSDS
contains all of the information required by those regulations.
CAS# 68-12-2 is listed on Canada's Ingredient Disclosure List
Section 16 - Other Information
          MSDS Creation Date:
            5/25/1999
          Revision #5 Date
         6/03/2005
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.
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