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Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M(TM) STAMARK(TM) Contact Cement E-44T
MANUFACTURER: 3M
DIVISION: Traffic Safety Systems Division

ADDRESS: 3M Center
 St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 01/10/2005
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Product Use:
 Specific Use: Adhesive for pavement marking tapes

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
Hexane	110-54-3	10 - 30
Acetone	67-64-1	10 - 30
Polychloroprene	9010-98-4	7 - 13
Methyl ethyl ketone	78-93-3	7 - 13
P-Tert- butylphenol-formaldehyde resin	25085-50-1	5 - 10
Naphtha (Petroleum), solvent-refined light	64741-84-0	5 - 10
N-amyyl acetate	628-63-7	5 - 10
Mixed heptanes	Mixture	3 - 7
Toluene	108-88-3	3 - 7
Magnesium oxide	1309-48-4	3 - 7
2-Methylbutyl acetate	624-41-9	1 - 5
Synthetic amorphous silica, fumed, crystalline free	112945-52-5	1 - 5
Zinc oxide	1314-13-2	0.5 - 1.5
Cyclohexane	110-82-7	0.5 - 1.5
Talc	14807-96-6	<= 0.11
Formaldehyde	50-00-0	<= 0.02

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Odor, Color, Grade: Gray, solvent odor, solution

General Physical Form: Liquid

Immediate health, physical, and environmental hazards: Flammable liquid and vapor. Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back. May cause allergic skin reaction. May cause allergic respiratory reaction. Contains a chemical or chemicals which can cause cancer. May cause target organ effects. Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Moderate Eye Irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact:

Moderate Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

May be absorbed through skin and cause target organ effects.

Inhalation:

Upper Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

May be absorbed following inhalation and cause target organ effects.

Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, nausea, diarrhea and vomiting.

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:

Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Prolonged or repeated exposure may cause:

Central Neuropathy: Signs/symptoms may include irritability, memory impairment, personality changes, sleep disorders, and decreased ability to concentrate.

Peripheral Neuropathy: Signs/symptoms may include tingling or numbness of the extremities, incoordination, weakness of the hands and feet, tremors and muscle atrophy.

Liver Effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

Kidney Effects: Signs/symptoms may include reduced or absent urine production, increased serum creatinine, lower back pain, increased protein in urine, and increased blood urea nitrogen (BUN).

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Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:

Contains a chemical or chemicals which can cause cancer.

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>Class Description</u>	<u>Regulation</u>
Formaldehyde	50-00-0	Group I	International Agency for Research on Cancer
Formaldehyde	50-00-0	Anticipated human carcinogen	National Toxicology Program Carcinogens
Formaldehyde	50-00-0	Cancer hazard	OSHA Carcinogens

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention.

If Swallowed: Do not induce vomiting. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	<i>No Data Available</i>
Flash Point	-7 °F [<i>Test Method:</i> Tagliabue Closed Cup]
Flammable Limits - LEL	1 %
Flammable Limits - UEL	12.8 %
OSHA Flammability Classification:	Class IA Flammable Liquid

5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Flammable liquid and vapor. Closed containers exposed to heat from fire may build pressure and explode. Vapors may travel long distances along the ground or floor to an ignition source and flash back.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Call 3M-HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Remove all ignition sources such as flames, smoking materials, and electrical spark sources. Use only non-sparking tools. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. **Warning!** A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Contain spill. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water. Cover spill area with a fire-extinguishing foam designed for use on solvents, such as alcohols and acetone, that can dissolve in water. An AR - AFFF type foam is recommended. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a toxic, corrosivity or flammability hazard. Collect as much of the spilled material as possible using non-sparking tools. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and MSDS. Collect the resulting residue containing solution. Place in a metal container approved for transportation by appropriate authorities. Seal the container. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Contents may be under pressure, open carefully. Keep away from heat, sparks, open flame, pilot lights and other sources of ignition. Ground containers securely when transferring contents. Wear low static or properly grounded shoes. Avoid breathing of vapors, mists or spray. Avoid static discharge. Avoid eye contact with vapors, mists, or spray. For industrial or professional use only. Avoid contact with oxidizing agents. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment. Avoid skin contact. Do not ingest.

7.2 STORAGE

Store away from acids. Store away from heat. Store out of direct sunlight. Keep container in well-ventilated area. Keep container tightly closed. Store away from oxidizing agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide local exhaust ventilation at transfer points. Provide appropriate local exhaust ventilation on open containers. Provide appropriate local exhaust when product is heated. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits and/or control mist, vapor, or spray. If ventilation is not adequate, use respiratory protection equipment.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact with vapors, mists, or spray.

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The following eye protection(s) are recommended: Indirect Vented Goggles.

8.2.2 Skin Protection

Avoid skin contact.

Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials. Gloves made from the following material(s) are recommended: Fluoroelastomer (Viton).

8.2.3 Respiratory Protection

Avoid breathing of vapors, mists or spray.

Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half facepiece or fullface air-purifying respirator with P100 particulate filters. Consult the current 3M Respiratory Selection Guide for additional information or call 1-800-243-4630 for 3M technical assistance.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

8.3 EXPOSURE GUIDELINES

<u>Ingredient</u>	<u>Authority</u>	<u>Type</u>	<u>Limit</u>	<u>Additional Information</u>
2-Methylbutyl acetate	ACGIH	TWA	50 ppm	
2-Methylbutyl acetate	ACGIH	STEL	100 ppm	
Acetone	ACGIH	TWA	500 ppm	Table A4
Acetone	ACGIH	STEL	750 ppm	Table A4
Acetone	OSHA	TWA, Vacated	750 ppm	
Acetone	OSHA	TWA	1000 ppm	Table Z-1
Acetone	OSHA	STEL, Vacated	1000 ppm	
Cyclohexane	ACGIH	TWA	100 ppm	
Cyclohexane	OSHA	TWA	300 ppm	Table Z-1
Formaldehyde	ACGIH	CEIL	0.3 ppm	Sensitizer; Table A2
Formaldehyde	OSHA	TWA	0.5 ppm	Standard Appendix
Hexane	ACGIH	TWA	50 ppm	Skin Notation*
Hexane	OSHA	TWA, Vacated	50 ppm	Table Z-1A
Hexane	OSHA	TWA	500 ppm	Table Z-1A
Magnesium oxide	ACGIH	TWA, as fume	10 mg/m3	Table A4
Magnesium oxide	OSHA	TWA, as total dust	15 mg/m3	Table Z-1
Methyl ethyl ketone	ACGIH	TWA	200 ppm	
Methyl ethyl ketone	ACGIH	STEL	300 ppm	
Methyl ethyl ketone	OSHA	TWA	200 ppm	Table Z-1A
Methyl ethyl ketone	OSHA	STEL	300 ppm	Table Z-1A
N-amyl acetate	ACGIH	TWA	50 ppm	
N-amyl acetate	ACGIH	STEL	100 ppm	
N-amyl acetate	OSHA	TWA	100 ppm	Table Z-1
Talc	ACGIH	TWA, respirable	2 mg/m3	Table A4
Talc	CMRG	TWA, as respirable dust	0.5 mg/m3	
Talc	OSHA	TWA, respirable	2 mg/m3	Table Z-1A
Toluene	ACGIH	TWA	50 ppm	Skin Notation*; Table A4
Toluene	CMRG	STEL	75 ppm	Skin Notation*
Toluene	OSHA	TWA, Vacated	100 ppm	
Toluene	OSHA	STEL, Vacated	150 ppm	
Toluene	OSHA	TWA	200 ppm	Table Z-2
Toluene	OSHA	CEIL	300 ppm	Table Z-2
Zinc oxide	ACGIH	TWA, respirable	2 mg/m3	
Zinc oxide	ACGIH	STEL	10 mg/m3	
Zinc oxide	OSHA	TWA, as fume	5 mg/m3	Table Z-1
Zinc oxide	OSHA	TWA, respirable	5 mg/m3	Table Z-1
Zinc oxide	OSHA	STEL, Vacated, as	10 mg/m3	

Zinc oxide	OSHA	fume TWA, Vacated, as	10 mg/m3	
Zinc oxide	OSHA	dust TWA, as total dust	15 mg/m3	Table Z-1

* Substance(s) refer to the potential contribution to the overall exposure by the cutaneous route including mucous membrane and eye, either by airborne or, more particularly, by direct contact with the substance. Vehicles can alter skin absorption.

VAC Vacated PEL: Vacated Permissible Exposure Limits [PEL] are enforced as the OSHA PEL in some states. Check with your local regulatory agency.

SOURCE OF EXPOSURE LIMIT DATA:

- ACGIH: American Conference of Governmental Industrial Hygienists
- CMRG: Chemical Manufacturer Recommended Guideline
- OSHA: Occupational Safety and Health Administration
- AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade:	Gray, solvent odor, solution
General Physical Form:	Liquid
Autoignition temperature	<i>No Data Available</i>
Flash Point	-7 °F [<i>Test Method: Tagliabue Closed Cup</i>]
Flammable Limits - LEL	1 %
Flammable Limits - UEL	12.8 %
Boiling point	>=132 °F
Density	0.65 - 0.87 g/ml [<i>@ 20 °C</i>]
Vapor Density	2 - 4.8 [<i>Ref Std: AIR=1</i>]
Vapor Pressure	4 - 187 mmHg [<i>@ 68 °F</i>]
Specific Gravity	0.65 - 0.87 [<i>Ref Std: WATER=1</i>]
pH	<i>Not Applicable</i>
Melting point	<i>Not Applicable</i>
Solubility In Water	<i>No Data Available</i>
Evaporation rate	<=10 [<i>Ref Std: BUOAC=1</i>]
Volatile Organic Compounds	631 g/l
Percent volatile	70 - 80 % weight
VOC Less H2O & Exempt Solvents	514 g/l
Viscosity	300 - 500 centipoise

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: Strong acids

Hazardous Polymerization: Hazardous polymerization will not occur.

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Hazardous Decomposition or By-Products

Substance

Aldehydes
Hydrocarbons
Carbon monoxide
Carbon dioxide
Hydrogen Chloride
Ketones

Condition

During Combustion
During Combustion
During Combustion
During Combustion
During Combustion
During Combustion

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Incinerate in a permitted hazardous waste incinerator. As a disposal alternative, dispose of waste product in a permitted hazardous waste facility.

Consolidate excess adhesive in one or more containers and incinerate in a permitted hazardous waste incinerator. Empty pails must be dry before disposing in a sanitary landfill. Punch holes in the dry, empty containers before disposal to prevent reuse of the pails.

EPA Hazardous Waste Number (RCRA): D001 (Ignitable), D035 (Methyl ethyl ketone)

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

41-3200-7086-9, 75-0300-1546-7, 75-0300-1547-5, 75-0300-2556-5

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

<u>Ingredient</u>	<u>C.A.S. No</u>	<u>% by Wt</u>
Methyl ethyl ketone	78-93-3	7 - 13
Toluene	108-88-3	3 - 7
Hexane	110-54-3	10 - 30
Cyclohexane	110-82-7	0.5 - 1.5
Zinc oxide (ZINC COMPOUNDS)	1314-13-2	0.5 - 1.5

This material contains a chemical which requires export notification under TSCA Section 12[b]:

<u>Ingredient (Category if applicable)</u>	<u>C.A.S. No</u>	<u>Regulation</u>	<u>Status</u>
Hexane	110-54-3	Toxic Substances Control Act (TSCA) 4 Test Rule Chemicals	Applicable
Cyclohexane	110-82-7	Toxic Substances Control Act (TSCA) 4 Test Rule Chemicals	Applicable
N-amyl acetate	628-63-7	Toxic Substances Control Act (TSCA) 4 Test Rule Chemicals	Applicable
Acetone	67-64-1	Toxic Substances Control Act (TSCA) 4 Test Rule Chemicals	Applicable

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

The components of this product are in compliance with the chemical notification requirements of TSCA.

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

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This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 2 Flammability: 4 Reactivity: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Reason for Reissue: The MSDS has been revised because 3M has adopted the 16-section ANSI/ISO format. The potential hazards of the product have not changed. We encourage you to reread the MSDS and review the information.

Revision Changes:

Section 1: Product use information was modified.

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