Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M(TM) Light Cure Adhesive LC-1114
MANUFACTURER: 3M
DIVISION: Electronics Markets Materials Division

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

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

Issue Date: 05/06/11
Supercedes Date: 08/18/10

Document Group: 22-0897-3

Product Use:
Intended Use: Adhesive

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
aromatic ester	Trade Secret	60 - 100
acrylate oligomer	Trade Secret	10 - 30
acrylate	Trade Secret	3 - 7
benzil dimethyl ketal	24650-42-8	1 - 5
hydrocarbon wax	Trade Secret	1 - 5

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Viscous
Odor, Color, Grade: Colorless; slight acrylic odor
General Physical Form: Liquid
Immediate health, physical, and environmental hazards: Contains inhibitor. Loss of inhibitor may render material unstable. Refer to Precautionary Storage and Handling Section. May cause allergic skin reaction.

3.2 POTENTIAL HEALTH EFFECTS

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

Vapors released during curing may cause 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.

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

Photosensitization: Signs/symptoms may include a sunburn-like reaction such as blistering, redness, swelling, and itching from minor exposure to sunlight.

Inhalation:
Vapors released during curing may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May be absorbed following inhalation and cause target organ effects.

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

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:
Prolonged or repeated exposure may cause:
Liver Effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

Kidney/Bladder Effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

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: If signs/symptoms develop, remove person to fresh air. If signs/symptoms persist, get medical attention.
If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	*No Data Available*
Flash Point	>=94 ºC [*Test Method:* Estimated]

Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*

5.2 EXTINGUISHING MEDIA
Ordinary combustible material. Use fire extinguishers with class A extinguishing agents (e.g., water, foam).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Water may be used to blanket the fire. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: Not applicable.

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

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel.

6.2. Environmental precautions

Clean-up methods
Collect as much of the spilled material 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. Avoid eye contact with vapors, mists, or spray. For industrial or professional use only. Avoid contact with oxidizing agents.

7.2 STORAGE
Store away from heat. Store out of direct sunlight. Store away from oxidizing agents. Material is light sensitive. Store in original packaging.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS
Use in a well-ventilated area.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection
Avoid eye contact. Avoid eye contact with vapors, mists, or spray.
The following eye protection(s) are recommended: Safety Glasses with side shields

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
Nitrile Rubber
.

8.2.3 Respiratory Protection
Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection. Avoid breathing of vapors.
Select one of the following NIOSH approved respirators based on airborne concentration of contaminants and in accordance with OSHA regulations: Half mask R95 particulate respirator
. Select and use respiratory protection to prevent an inhalation exposure based on the results of an exposure assessment. Consult with your respirator manufacturer for selection of appropriate types of respirators.

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

Ingredient	Authority	Type	Limit	Additional Information
benzil dimethyl ketal	CMRG	TWA	10 mg/m3	
acrylate	AIHA	TWA	1 mg/m3	Skin Notation*

* 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.

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

Specific Physical Form:	Viscous
Odor, Color, Grade:	Colorless; slight acrylic odor
General Physical Form:	Liquid
Autoignition temperature	*No Data Available*
Flash Point	>=94 ºC [*Test Method:* Estimated]
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Boiling Point	*Not Applicable*
Density	1.13 g/cm3
Vapor Density	*No Data Available*
Vapor Pressure	<=0.1 mmHg [@ 25 ºC]
Specific Gravity	1.13 [*Ref Std:* WATER=1]

pH	*Not Applicable*
Melting point	*Not Applicable*
Solubility in Water	Negligible
Evaporation rate	*Not Applicable*
Volatile Organic Compounds	*Not Applicable*
Kow - Oct/Water partition coef	*No Data Available*
Percent volatile	0 %
VOC Less H2O & Exempt Solvents	*Not Applicable*
Viscosity	650 centipoise [@ 25 ºC]

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid:
10.1 Conditions to avoid
Heat

10.2 Materials to avoid
Strong oxidizing agents
Reducing agents

Hazardous Polymerization: Hazardous polymerization will not occur.
Other Stability: Contains inhibitor. Loss of inhibitor may render material unstable. Refer to Precautionary Storage and Handling Section.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

SECTION 11: TOXICOLOGICAL INFORMATION

Component-Based Toxicology Information:

Results from an unpublished study: Benzil dimethyl ketal (CAS# 24650-42-8) was administered at dietary concentrations of 0 (control), 1200, 2000, 4000 and 8000 ppm for three months to groups of male and female Sprague-Dawley rats. Following exposure, animals from the high dose and control groups were observed for an additional one month recovery period. The liver and kidneys were target organs. Briefly, effects included a dose-related increase in kidney weight, accompanied by histopathological changes and proteinuria. All of these effects were not completely reversible following the recovery period. A dose-related increase in liver weight was observed; mild liver changes were also observed at the two highest doses. All these liver effects were found to be reversible following the recovery period.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of completely cured (or polymerized) wastes in a sanitary landfill.
As a disposal alternative, incinerate uncured product in an industrial or commercial incinerator in the presence of a combustible material.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14:TRANSPORT INFORMATION

ID Number(s):
70-0710-4819-6, XA-0041-6515-6

Not regulated per U.S. DOT, IATA or IMO.

These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. *3M transportation classifications are based on product formulation, packaging, 3M policies and 3M understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and* ***not*** ***the packaging, labeling, or marking requirements.*** *The original 3M package is certified for U.S. ground shipment only. If you are shipping by air or ocean, the package may not meet applicable regulatory requirements.*

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS
Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No Pressure Hazard - No Reactivity Hazard - Yes Immediate Hazard - Yes Delayed Hazard - Yes

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

Ingredient	C.A.S. No	% by Wt
aromatic ester (GLYCOL ETHERS)	Trade Secret	60 - 100

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
Contact 3M for more information.

INTERNATIONAL REGULATIONS
Contact 3M for more information.

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:** 1 **Reactivity:** 1 **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.

Revision Changes:
Section 16: Disclaimer (second paragraph) was modified.
Section 8: Skin protection - recommended gloves information was modified.
Section 14: Transportation legal text was modified.
Section 9: Vapor pressure value was modified.
Section 9: Boiling point information was modified.
Section 5: Flammable limits (UE) information was modified.
Section 5: Flammable limits (LEL) information was modified.
Section 9: Property description for optional properties was modified.
Section 8: Respiratory protection - recommended respirators guide was modified.
Section 9: Flammable limits (LEL) information was modified.
Section 9: Flammable limits (UEL) information was modified.
Section 2: Ingredient table was modified.
Section 6: 6.2. Environmental precautions heading was modified.
Section 6: 6.1. Personal precautions, protective equipment and emergency procedures heading was modified.
Section 16: Web address was added.
Section 1: Address was added.
Copyright was added.
Company logo was added.
Telephone header was added.
Company Telephone was added.
Section 1: Emergency phone information was added.
Section 1: Emergency phone information was deleted.
Company Logo was deleted.
Copyright was deleted.
Section 16: Web address heading was deleted.
Section 1: Address line 1 was deleted.
Section 1: Address line 2 was deleted.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

3M provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, 3M makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the MSDS available directly from 3M

3M USA MSDSs are available at www.3M.com