



Material Safety Data Sheet

*** Section 1 - Product and Company Identification ***

MSDS Code: 3100-016A

Product Name: Damage Detection Agent

Product Use: Aerosol spray to detect damaged micro-capsules on carbonless copy paper.

Synonyms: CB Damage Detection Agent

Manufacturer Information

P.H. Glatfelter Company
Printing and Carbonless Papers Division
401 South Paint Street
Chillicothe, Ohio 45601

Phone: (740) 772-3111

Emergency # 1-800-424-9300 CHEMTREC

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent
108-88-3	Toluene	65-75
106-97-8	Butane	10-20
74-98-6	Propane	10-20
Trade Secret	Phenolic Resin	1-5

Component Information/Information on Non-Hazardous Components

This product contains component(s) identified a Glatfelter trade secret. This information will be made available to qualified health professionals when required.

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*** Section 3 - Hazards Identification ***

Emergency Overview

- * DANGER!
- * Clear aerosol liquid with a solvent odor.
- * EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE.
- * CONTENTS UNDER PRESSURE.
- * HARMFUL IF SWALLOWED OR INHALED.
- * MAY CAUSE EYE, SKIN, AND RESPIRATORY TRACT IRRITATION.

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

Potential Health Effects: Eyes

May cause eye irritation. Irritation symptoms may include burning sensation, tearing, redness and swelling.

Potential Health Effects: Skin

May cause skin irritation. Symptoms may include redness, itching, severe drying, and cracking. Prolonged or repeated skin exposure may cause dermatitis due to defatting of the skin.

Potential Health Effects: Ingestion

Exposure by ingestion is not expected to occur through normal industrial use.

Potential Health Effects: Inhalation

May be harmful if inhaled. Symptoms may include respiratory tract irritation, headache, dizziness, confusion/hallucinations, muscle weakness, nausea, and other signs of central nervous system depression. Prolonged or repeated inhalation may cause permanent damage to the central nervous system, loss of vision and hearing, respiratory problems, and death. Accumulation of vapors can cause asphyxiation without warning.

Medical Conditions Aggravated by Exposure:

Chronic respiratory, cardiac, or neurological conditions may be aggravated by repeated exposure.

***** Section 4 - First Aid Measures *****

First Aid: Eyes

First check the victim for contact lenses and remove if present. Immediately flush eyes with plenty of water or normal saline for at least 15 minutes while holding eyelids open. If symptoms such as redness or irritation develop or persist, get immediate medical attention. Do not put any medication in the victim's eyes unless instructed by a physician.

First Aid: Skin

Remove contaminated clothing. Wash skin with soap and flush thoroughly with plenty of water. Obtain medical attention if irritation develops or other symptoms occur. Clean contaminated clothing before reuse or dispose of properly.

First Aid: Ingestion

If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. If the victim is unconscious, keep airway open and lay the victim on his or her side with the head lower than the body.

First Aid: Inhalation

Remove exposed subject to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, administer oxygen (by trained personnel only). Get medical attention.

First Aid: Notes to Physician

This product contains an ingredient which may aggravate pre-existing kidney and respiratory disorders.

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

*** Section 5 - Fire Fighting Measures ***

Flash Point: <0° F

Upper Flammable Limit (UFL): 9.5 (propellant)

Auto Ignition: Not available

Rate of Burning: Not determined

Method Used: Tag Closed Cup Tester

Lower Flammable Limit (LFL): 1.0 (propellant)

Flammability Classification: Flammable

General Fire Hazards

Product is a highly flammable aerosol liquid. DO NOT SPRAY NEAR OPEN FLAMES. Keep away from heat, electrical equipment and sparks. Contents of can are extremely flammable and under pressure. Exposure to direct sunlight or temperatures above 120° F may cause cans to burst. Vapors are heavier than air and can collect in low areas; vapors can travel to an ignition source and flash back.

Hazardous Combustion Products

Hazardous combustion products include black smoke and toxic fumes of carbon dioxide and carbon monoxide.

Extinguishing Media

Use dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective as an extinguishing agent, but water should be used to keep fire-exposed containers cool to prevent build-up and possible autoignition or explosion when exposed to extreme heat. If water is used, fog nozzles are preferable.

Fire Fighting Equipment/Instructions

Keep unnecessary people away; isolate hazard area and deny entry. Remove containers exposed to fire if possible; otherwise cool them from the side with water spray. Emergency equipment including self-contained breathing apparatus (SCBA) and full fire fighting turnout gear should be worn by fire fighters.

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Isolate the spill area. Eliminate all heat and ignition sources. Ventilate the area of the spill and isolate the area.

Clean-Up Procedures

Absorb small spills using inert material (e.g. paper towels, spill control pillows, absorbent particulate). Scoop up material for recovery or cover with inert absorbent material. Scoop up absorbed material and place in a container for disposal. In the event of a large spill, contain by diking with dry sand, sorbent booms, or other absorbent material. When cleaning spills, wear appropriate personal protective equipment including splash-proof safety goggles and chemical resistant gloves (see Section 8).

Evacuation Procedures

Close off area. Keep unnecessary personnel away.

Special Procedures

[Note: Refer to U.S. DOT Emergency Response Guidebook, Guide Number 12 for additional information.]

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

*** Section 7 – Handling and Storage ***

Handling Procedures

Do not handle near open flames, heat, sparks or other sources of ignition. Use in a well-ventilated area. Vapors can accumulate and ignite. Do not puncture - contents under pressure. Avoid contact with skin and eyes. Avoid breathing vapors.

Storage Procedures

Keep containers closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible materials (see Section 10). Store at room temperature and away from direct sunlight. DO NOT store near open flames or other sources of ignition.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

Neither the Occupational Safety and Health Administration (OSHA) nor the American Conference of Governmental Industrial Hygienists (ACGIH) has developed exposure limits for this product. Exposure limits exist for the following ingredients:

B: Component Exposure Limits

Toluene (108-88-3)

ACGIH: 20 ppm TWA
OSHA: 200 ppm TWA (Final); 300 ppm Ceiling
OSHA: 150 ppm STEL; 560 mg/m³ STEL

Butane (106-97-8)

ACGIH: 1000 ppm TWA (listed under aliphatic hydrocarbon gases alkane C1-C4)

Propane (74-98-6)

ACGIH: 1000 ppm TWA (listed under aliphatic hydrocarbon gases alkane C1-C4)
OSHA: 1000 ppm TWA; 1800 mg/m³ TWA (Final)

Engineering Controls

Adequate local and/or general exhaust ventilation or other engineering controls to keep airborne concentrations below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Recommend use of safety glasses with side shields or goggles.

Personal Protective Equipment: Skin

Not required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemically resistant, non-permeable gloves (polyvinyl alcohol or Viton gloves are recommended). Customer is responsible for determining suitability of gloves for the work environment and other solvents or chemicals that the employee may normally be exposed to. Replace gloves at first signs of deterioration (hardening, cracking, softening or swelling).

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

Personal Protective Equipment: Respiratory

Respiratory protection not normally required. If airborne contaminant levels may exceed recommended exposure limits, NIOSH approved respiratory protection appropriate for employee exposure levels is recommended. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.1 requirements must be followed whenever workplace conditions warrant a respirator's use.

***** Section 9 - Physical & Chemical Properties *****

Appearance: Clear liquid	Odor: Solvent
Physical State: Liquid	pH: Not available
Vapor Pressure: 760 mm Hg	Vapor Density: >1
Boiling Point: < 0° F	Melting Point: Not applicable
Solubility (H₂O): Not available	Specific Gravity: 0.74
Percent Volatile: by volume, 100 % (at 70° F/21° C); by weight, 99.4%	

***** Section 10 - Stability & Reactivity Information *****

Chemical Stability

Product is stable under normal conditions of use.

Chemical Stability: Conditions to Avoid

Avoid heat, high temperatures, pressure, mechanical shock or other conditions that might result in a hazardous situation.

Incompatibility

The ingredients of this product are incompatible with strong oxidizing agents.

Hazardous Decomposition

Hazardous decomposition products include black smoke and toxic fumes of carbon dioxide and carbon monoxide.

Hazardous Polymerization

Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

*** Section 11 – Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

Product may cause respiratory, eye, and skin irritation. Toluene may be slowly absorbed through the skin. Exposure of toluene at 100-200 ppm levels may cause a change in motor activity, psychophysiological tests, hallucinations, blood changes, antipsychotic behavior and central nervous system effects. Prolonged or repeated exposure to toluene liquid may cause skin dryness or dermatitis. Overexposure to toluene may also cause loss of vision and hearing, respiratory problems, enlarged liver, cardiac sensitization, and seizures. Accumulation of vapors of butane and propane may cause asphyxiation without warning, producing dizziness and sleepiness. In an eye irritation study with rabbits, phenolic resin was not found to be a primary eye irritant. In a skin irritation study with rabbits, phenolic resin was not found to be a primary skin irritant (primary irritation index of 0.04). Phenolic resin did not cause dermal sensitization in guinea pigs in a closed patch test. Several toxicological studies for phenolic resin are as follows:

Inhalation, rat, LC50 = > 5 g/m³ (4 hr);
DERMAL, rabbit, LD50 = > 2000 mg/kg;
Oral, rat, LD50 = > 5000 mg/kg.

B: Component Analysis - LD50/LC50

Toluene (108-88-3)

Inhalation LC50 Rat : 12.5 mg/L/4H
Inhalation LC50 Rat : > 26700 ppm/1H
Oral LD50 Rat : 636 mg/kg
Dermal LD50 Rabbit : 8390 mg/kg
Dermal LD50 Rat : 12124 mg/kg

Butane (106-97-8)

Inhalation LC50 Rat : 658 gm/m³/4H

Propane (74-98-6)

Inhalation LC50 Rat : 658 gm/m³/4H

Carcinogenicity

A: General Product Information

No information available for product. Conflicting study results regarding the carcinogenic potential of toluene have been reported; however, when benzene contamination is not present, it is unlikely that toluene exposure alone is carcinogenic.

B: Component Carcinogenicity

Toluene (108-88-3)

IARC: Monograph 71 (1999); Monograph 47, 1989 (Group 3 (not classifiable))

Epidemiology

No information is available for this product.

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

Neurotoxicity

No information is available for this product. Toluene may cause central nervous system depression. Repeated exposure to toluene has a cumulative effect on the nervous system. The neurological effects of chronic exposure to high levels of toluene gradually progress to an irreversible state. Besides effects on behavior and intelligence, degeneration of the optic nerve and nerve deafness have also been reported in excessive exposure.

Mutagenicity

No information is available for this product. Toluene was not mutagenic in the Ames Salmonella/microsome assay. The results of chromosomal assays have been mixed. In vitro sister chromatid exchange and chromosome aberrations using human lymphocytes have been both positive and negative.

Teratogenicity

No information is available for this product. Women exposed to toluene in laboratory work had a approximately 5-fold increased risk of spontaneous abortions, without an increase in birth defects. Intentional and deliberate abuse of toluene has produced birth defects that include microencephaly, CNS deficiencies, and facial abnormalities, as well as disturbances in growth. The spectrum of defects in children of women who have abused toluene and other solvents has been called Fetal Solvent Syndrome. Several animal studies using rats, mice, and rabbits have shown that exposure to toluene during gestation has caused fetotoxicity, fetal biochemical/behavioral changes, and developmental effects.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

No information is available on ecotoxicity of this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Toluene (108-88-3)

Test & Species		Conditions
LC50 (96 hr) Pimephales promelas (1 day old)	25.0 mg/L.	Flow-through
LC50 (96 hr) Oncorhynchus mykiss	24.0 mg/L.	Flow-through
LC50 (96 hr) Lepomis macrochirus	24.0 mg/L.	Static
LC50 (96 hr) Lepomis macrochirus	13.0 mg/L.	Static
LC50 (96 hr) Selenastrum capricornutum	>433.0 mg/L.	
EC50 (30 min) Photobacterium phosphoreum	19.7 mg/L	
EC50 (48 hr) water flea	11.3 mg/L.	
EC50 (48 hr) water flea	310 mg/L.	
EC50 (48 hr) Daphnia magna	11.3 mg/L.	

Environmental Fate

No data available for this product.

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Waste from this product may be hazardous as defined under RCRA 40 CFR 261. Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

B: Component Waste Numbers

Toluene (108-88-3)

RCRA: waste number U220

Disposal Instructions

DO NOT puncture or incinerate. Dispose of in accordance with local, state and federal regulations.

*** Section 14 - Transportation Information ***

US DOT Information

Proper Shipping Name: Aerosols, flammable **Hazard Class:** 2.1 **UN/NA #:** UN1950

Packing Group: None

Required Label(s): FLAMMABLE GAS **Special Restrictions:** Maximum net quantity is 75 kg for passenger aircraft, 150 kg for cargo aircraft. May be stored "on deck" or "under deck" on a cargo vessel and a passenger vessel. Under deck stowage must be in a mechanically ventilated space. Store "clear of living quarters" and "away from" sources of heat.

TDG Information

Proper Shipping Name: Aerosols, flammable **Hazard Class:** 2.1 **UN/NA #:** UN1950

Packing Group: None

Required Label(s): FLAMMABLE GAS

International Transportation Regulations

International Air Transportation Association (IATA):

Proper Shipping Name: Aerosols, flammable **Hazard Class:** 2.1 **UN/NA #:** UN1950

Packing Group: None

Required Label(s): FLAMMABLE GAS **Special restrictions:** For passenger and cargo aircraft, follow IATA packing instruction 203; maximum net quantity per package is 75 kg for passenger aircraft, 150 kg for cargo aircraft. Carton must be 4G if shipped under Packing Instruction 203.

International Maritime Dangerous Goods (IMDG) Code:

Proper Shipping Name: Aerosols, flammable **Hazard Class:** 2.1 **UN/NA #:** UN1950

Packing Group: None

Required Label(s): FLAMMABLE GAS **EMS No.** 2-13 **MFAG Table No.** 620

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

No lead, cadmium, mercury, or hexavalent chromium is intentionally added to this product. The combined concentration of lead, cadmium, mercury, and hexavalent chromium in this product does not exceed one hundred parts per million by weight.

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Toluene (108-88-3)

SARA 313: form R reporting required for 1.0% de minimis concentration

CERCLA: final RQ = 1000 pounds (454 kg)

SARA 311/312: Immediate: Yes Delayed: Yes Reactive: No Pressure: No Fire: Yes

State Regulations

A: General Product Information

None

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	MA	MN	NJ	PA	RI
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	Yes
Butane	106-97-8	Yes	Yes	Yes	Yes	Yes	Yes
Propane	74-98-6	No	Yes	Yes	Yes	Yes	Yes

C. California Proposition 65

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Other Regulations

A: General Product Information

None

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL/NDSL	EINECS
Toluene	108-88-3	Yes	Yes	Yes
Butane	106-97-8	Yes	Yes	Yes
Propane	74-98-6	Yes	Yes	Yes

Material Safety Data Sheet

Product Name: **Damage Detection Agent**

ID: **3100-016A**

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Toluene	108-88-3	1%
Butane	106-97-8	1%

*** Section 16 - Other Information ***

Hazard Ratings

[Refer to Section 3 for additional label information, including target organ effects.]

A hazard rating has not been developed by NFPA for this product. The hazard ratings included in this MSDS have been developed based on NFPA and HMIS criteria as well as professional judgement. This information is intended solely for the use of individuals trained in these hazard rating systems.

HMIS:	NFPA:
HMIS Health: 2	NFPA Health: 2
HMIS Fire: 4	NFPA Fire: 4
HMIS Reactivity: 0	NFPA Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard.

Label Information

DANGER!

EXTREMELY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. CONTENTS UNDER PRESSURE. HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE EYE, SKIN, AND RESPIRATORY TRACT IRRITATION.

ATTENTION! CONTAINS A MATERIAL WHICH MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA. CONTAINS A MATERIAL MAY CAUSE NERVOUS SYSTEM EFFECTS.

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Keep away from heat sparks, and flame.
Do not puncture or incinerate container.
Do not expose to temperatures above 120° F (40° C).
Keep container closed.
Use only with adequate ventilation.
Avoid breathing vapors or mists.
Avoid contact with eyes, skin, and clothing.
Wash thoroughly after handling.

FIRST AID: If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, administer oxygen (by trained personnel only).

Material Safety Data Sheet

Product Name: Damage Detection Agent

ID: 3100-016A

If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. If the victim is unconscious, keep airway open and lay the victim on his or her side with the head lower than the body.

In case of contact, immediately flush eyes or skin with plenty of water. Get medical attention if irritation develops or persists. Clean contaminated clothing, before reuse, or dispose of properly.

For additional information, refer to the Material Safety Data Sheet (MSDS) for this product.

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists. TLV = Threshold Limit Value. NIOSH = National Institute of Occupational Safety and Health. NTP = National Toxicology Program. OSHA = Occupational Safety and Health Administration. NFPA = National Fire Protection Association. HMIS = Hazardous Material Information System. CFR = Code of Federal Regulations. CERCLA = Comprehensive Environmental Response, Compensation and Liability Act. SARA = Superfund Amendments and Reauthorization Act. HEPA = High Efficiency Particulate Air.

Preparation And Revision Information

Prepared by the P.H. Glatfelter Company (Glatfelter), Printing and Carbonless Papers Division, Product Stewardship Center, 401 South Paint Street, Chillicothe, OH 45601.

The information and recommendations presented in this MSDS are provided in good faith, and are based on sources believed to be accurate. NO WARRANTIES OF USE OR OTHERWISE ARE EXPRESSLY MADE OR IMPLIED FROM THIS INFORMATION. The information provided relates to this specific material, and may not be valid for this material if used in combination with any other materials or in any process. It is the user's responsibility to determine the suitability of this information for his/her own particular purposes.

This is the end of MSDS # 3100-016A