

Material Safety Data Sheet

FOR INDUSTRIAL USE ONLY

Borden™ NS-40A

1. Product and company identification

Product name	Borden™ NS-40A
MSDS Number	000000106415
Product Type	Hexa Liquid
Product use	Neutralizing Solution
Manufacturer, Importer, Supplier	Momentive Specialty Chemicals Inc. 180 East Broad Street Columbus OH 43215 4information@momentive.com
Print date	01-JUN-2011
Telephone	For Emergency Medical Assistance Call Health & Safety Information Services, 1-866-303-6949 For Emergency Transportation Information CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887 CANUTEC CA Domestic (613) 996-6666 For additional health and safety or regulatory information, call 1 888 443 9466 .

The MSDS is not to be used as a specification sheet. For Specific technical information on the product listed above, a sales specification sheet should be obtained from your Momentive representative.

2. Hazards identification

Form	Liquid
Odor	Little or none
OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	WARNING ! CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.

Potential acute health effects

Inhalation	Irritating to respiratory system. May cause sensitization by inhalation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	Not expected to be harmful under normal conditions of use.
Skin	Irritating to skin. May cause sensitization by skin contact.

Eyes Irritating to eyes.

Potential chronic health effects

Chronic effects Contains material that can cause target organ damage. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that preexisting respiratory and skin disorders may be aggravated by exposure.

Carcinogenicity Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Target organs Contains material which causes damage to the following organs: mucous membranes, skin, eyes, Review Section 2 and 11 for any additional assessments.

Over-exposure signs/symptoms

Inhalation Adverse symptoms may include the following: respiratory tract irritation, coughing, wheezing and breathing difficulties, asthma,

Ingestion No specific data.

Skin Adverse symptoms may include the following: irritation, redness,

Eyes Adverse symptoms may include the following: pain or irritation, watering, redness,

Medical conditions aggravated by over-exposure Pre-existing respiratory and skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See section 11 for more detailed information on health effects and symptoms.

3. Composition/Information on ingredients

<u>Ingredient name</u>	<u>CAS number</u>	<u>WT %</u>
Hexamethylenetetramine	100-97-0	30.0 - 50.0
Formaldehyde	50-00-0	0.1 - 1.0

*** Any applicable Canadian trade secret numbers will be listed in Section 15.*

4. First aid measures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation	Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.
Ingestion	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Protection of first aid personnel	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Flammability of the product	In a fire or if heated, a pressure increase will occur and the container may burst.
<u>Extinguishing media</u>	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
Special exposure hazards	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Hazardous combustion products	Decomposition products may include the following materials: carbon oxides, nitrogen oxides, aldehydes (including formaldehyde), irritating and toxic fumes and gasses particulate matter, ammonia hydrogen cyanide
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions	No action shall be taken involving any personal risk or without suitable
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training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Large spill

Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Small spill

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Handling

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Ingredient name
Formaldehyde

Occupational exposure limits

ACGIH TLV Ceiling
0.37 mg/m³ 0.3 ppm

OSHA PEL 8-hr TWA

0.75 ppm

OSHA PEL STEL (15 mins)
2 ppm

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Engineering measures	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Respiratory	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eyes	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
Skin	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Form	Liquid
Flash point	Greater than 100 °C(212 °F)
Auto-ignition temperature	Not applicable.
Flammable limits	
Lower:	Not available
Upper:	Not available
Color	Clear, colorless/colourless to yellow

Odor	Little or none
pH	7.0 - 8.0 @ 25 °C(77 °F)
Boiling point	Approx. 102 °C(216 °F)
Freezing Point	Less than 0 °C(32 °F)
Relative density	1.096 - 1.104
Vapor pressure	Not available
Odor threshold	Not available
Viscosity	Dynamic- Not available
Solubility	Infinite
Partition coefficient: n-octanol/water	Not available
Evaporation rate	Not available
Vapor density	Not available

10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Avoid exposure - obtain special instructions before use.
Materials to avoid	No specific data.
Hazardous decomposition products	Decomposition products may include the following materials: formaldehyde, hydrogen cyanide ammonia Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Acute toxicity

Ingredient name

Hexamethylenetetramine	LD50 Oral	Mouse	569 mg/kg
Formaldehyde	LD50 Oral	Rat	800 mg/kg
	LC50 Inhalation	Rat	0.578 mg/l 250 ppm/2 h
	LD50 Dermal	Rabbit	270 mg/kg

Other Toxicological Information

Carcinogenicity

Conclusion/Summary

The National Toxicology Program (NTP) has listed formaldehyde as "reasonably anticipated to be a human carcinogen". The International Agency for Research on Cancer (IARC) has concluded that formaldehyde is "carcinogenic to humans". U.S. OSHA regulates formaldehyde as a potential human carcinogen. See the OSHA Formaldehyde Workplace Standard at 29 CFR 1920.1048 (the "OSHA Standard"). Safe handling and use instructions are provided in this MSDS and in the OSHA Standard. OSHA has identified 0.5 ppm, calculated as an eight-hour time-weighted average ("TWA") concentration, as the "Action Level". Please review and understand the guidance contained in this MSDS, and refer to the OSHA Standard for regulatory requirements that might be applicable to your operation and use. Many studies and other evaluations have been performed concerning formaldehyde's potential to cause cancer. To review some of these studies and for further information go to www.osha.gov/SLTC/formaldehyde; <http://monographs.iarc.fr>; <http://ntp-server.niehs.nih.gov>; <http://epa.gov/iris/subst/0419.htm>; and other authoritative websites.

Classification**Ingredient name**

Hexamethylenetetramine

ACGIH	Not classified
IARC	Not classified
NTP	Not listed
OSHA	Not regulated
EU	Not classified

Formaldehyde

ACGIH	Suspected human carcinogen.
IARC	IARC Group 1, carcinogenic to humans
NTP	Possible
OSHA	OSHA cancer potential
EU	Limited evidence of a carcinogenic effect.

Mutagenicity**Conclusion/Summary**

Hexamethylenetetramine: In an Ames assay (in vitro) using Salmonella typhimurium, this chemical produced a weak dose-response increase in mutations in strain TA100 with metabolic activation and, in strain TA98 with and without metabolic activation. However, it was reported as NOT mutagenic when tested in an Ames assay (in vitro) using Salmonella typhimurium strains TA1535, TA1537 and TA1538 with and without activation.

12. Ecological information**Environmental effects**

No known significant effects or critical hazards.

Aquatic ecotoxicity**Ingredient name**

Hexamethylenetetramine

Fresh water	Acute LC50 49,800 mg/l/96 h	Fathead minnow
Marine water	Acute LC50 49,000 mg/l/4 d	Sheepshead minnow
Marine water	Acute LC50 > 10,000 mg/l/4 d	Bleak

Formaldehyde

Fresh water	Acute LC50 1.41 mg/l/4 d	Rainbow trout,donaldson trout
Fresh water	Acute LC50 1.51 mg/l/4 d	Bluegill

Other adverse effects

No known significant effects or critical hazards.

13. Disposal considerations**Waste disposal**

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR		Non-regulated		
TDG		Non-regulated		
IMO/IMDG		Non-regulated		
IATA (Cargo)		Non-regulated		

*PG : Packing group

15. Regulatory information

US regulations

HCS Classification Irritating material, Sensitizing material, Carcinogen, Target organ effects

U.S. Federal regulations **SARA 311/312 Classification** Immediate (acute) health hazard, Delayed (chronic) health hazard

SARA 313 - Supplier Notification

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

Formaldehyde - 50-00-0 (0.19%),

SARA 302 Extremely Hazardous Substances None required.

State regulations **Massachusetts RTK Substances** None required.

New Jersey RTK Hazardous Substances The following components are listed:
Formaldehyde, Hexamethylenetetramine,

Pennsylvania RTK Hazardous Substances The following components are listed:
Formaldehyde,

California Prop. 65: WARNING: This product contains a chemical known to the State of California to cause cancer. Formaldehyde - 50-00-0,

Canada

WHMIS (Canada) Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists **Canadian NPRI:** None required.

International regulations

Chemical inventories

Europe inventory All components are listed or exempted.
Australia inventory (AICS) All components are listed or exempted.
China inventory (IECSC) All components are listed or exempted.
Japan inventory (ENCS) All components are listed or exempted.
Japan inventory (ISHL) Not determined.
Korea inventory (KECI) All components are listed or exempted.
New Zealand Inventory (NZIoC) Not determined.
Philippines inventory (PICCS) All components are listed or exempted.

Canada inventory All components are listed or exempted.
 United States inventory (TSCA 8b) All components are listed or exempted.
 Australia inventory (AICS) All components are listed or exempted.
 Canada inventory All components are listed or exempted.
 Japan inventory All components are listed or exempted.
 China inventory (IECSC) All components are listed or exempted.
 Korea inventory All components are listed or exempted.
 New Zealand Inventory (NZIoC) All components are listed or exempted.
 Philippines inventory (PICCS) All components are listed or exempted.
 United States inventory (TSCA 8b) All components are listed or exempted.

16. Other information

Hazardous Material Information System III (U.S.A.)	Health : 2 Flammability: 0 Physical hazards : 0 Chronic : *
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Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

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