



# Material Safety Data Sheet

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Brake System Hydro-Boost ®

**OTHER/GENERIC NAMES:** Hydro-Boost ® Assembly (assembled machinery)

**PRODUCT USE:** Motor Vehicle Braking Systems

**MANUFACTURER:** Robert Bosch Corporation  
Chassis Division  
3737 Red Arrow Highway  
St. Joseph, Michigan 48085

**FOR MORE INFORMATION CALL:**  
(Monday-Friday, 8:00 AM – 5:00 PM)  
Chassis Division  
Environmental, Health & Safety Department  
(269) 428-6500

**IN CASE OF EMERGENCY CALL:**  
(24 Hours/Day, 7 Days/Week)  
(269) 428-7500

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Nitrogen (gaseous state) contained within an installed component called an "accumulator." (See 3 below.)	7727-37-9	100

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

## 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** This assembled piece of machinery is installed with, as one of its components, a part called an "accumulator." This accumulator is a small cylinder (approximately 2 - 5 cubic inches in size) containing nitrogen, a colorless inert gas under pressure ranging between approximately 180 and 795 psi at 75° F. Do not rupture, open or disassemble this accumulator / container. Do not expose either this assembled piece of equipment, or any of its installed components, including the accumulator / container, to direct flame or heat. Avoid any eye, skin, or clothing contact with any gas venting from this assembled piece of machinery, or any of its installed components.

### POTENTIAL HEALTH HAZARDS

**SKIN:** Do not expose skin to venting gas from this assembled piece of machinery or any of its installed components, which can cause burns and blisters.

**EYES:** May cause cryogenic burns if exposed to venting gas.

**INHALATION:** Nitrogen is an asphyxiant. Nitrogen under high pressure can cause narcosis even though sufficient oxygen is present. The quantity contained in the Brake System Accumulator is not expected to produce a hazardous atmosphere.

**INGESTION:** Not an anticipated route of entry.



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**DELAYED EFFECTS:** None expected.

Ingredients found on one of the OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
None			

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## 4. FIRST AID MEASURES

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**\*\* If any of the symptoms persist, seek medical attention immediately. \*\***

**SKIN:** Warm skin by flooding or soaking with warm water (105 - 115° F, 41 - 45° C). Do not use hot water.

**EYES:** Flood eyes with warm water (105 - 115° F, 41 - 45° C). Contact a physician immediately.

**INHALATION:** Remove affected person to fresh air. Contact a physician immediately.

**INGESTION:** Not an anticipated route of entry.

**ADVICE TO PHYSICIAN:** Treat according to symptoms present.

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## 5. FIRE FIGHTING MEASURES

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### FLAMMABLE PROPERTIES

- FLASH POINT:** Not applicable.
- FLASH POINT METHOD:** Not applicable.
- AUTOIGNITION TEMPERATURE:** Not applicable.
- UPPER FLAME LIMIT (volume % in air):** Not applicable.
- LOWER FLAME LIMIT (volume % in air):** Not applicable.
- FLAME PROPAGATION RATE (solids):** Not applicable.
- OSHA FLAMMABILITY CLASS:** Not flammable.

**EXTINGUISHING MEDIA:** Not flammable. Use extinguishing media appropriate for the surrounding area.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Brake System Accumulators exposed to high heat or flame may vent rapidly.

**SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:** None.

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## 6. ACCIDENTAL RELEASE MEASURES

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### **IN CASE OF SPILL OR OTHER RELEASE:**

Always wear recommended personal protective equipment. Allow Brake System and/or installed accumulator to vent safely until the gas has escaped. Do not attempt to stop the gas from venting from the Brake System or its installed components. Do not breathe the gas. Avoid contact with skin, eyes and clothing.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.



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## 7. HANDLING AND STORAGE

**NORMAL HANDLING:**

Always wear recommended personal protective equipment. Do not rupture Brake System's installed accumulator / container and /or other components. Avoid contact with eyes, skin and clothing. Protective caps should remain on the Brake System assemblies until installation.

**STORAGE RECOMMENDATIONS:**

Store in a well-ventilated area away from heavy traffic. Store away from sources of heat.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**ENGINEERING CONTROLS:**

General ventilation is sufficient to dissipate gas should it be released.

**PERSONAL PROTECTIVE EQUIPMENT**

**SKIN PROTECTION:**

None normally required.

**EYE PROTECTION:**

Safety glasses are adequate for all uses.

**RESPIRATORY PROTECTION:**

None normally required.

**ADDITIONAL RECOMMENDATIONS:**

None normally required.

**EXPOSURE GUIDELINES**

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Nitrogen (gaseous state)	Simple Asphyxiant	None	None

\* = Workplace Environmental Exposure Level (AIHA).

\*\* = Biological Exposure Index (ACGIH).

**OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:** None

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Gaseous nitrogen is colorless and odorless  
**PHYSICAL STATE:** gas  
**MOLECULAR WEIGHT:** 28.01  
**CHEMICAL FORMULA:** N  
**ODOR:** None  
**SPECIFIC GRAVITY (water = 1.0):** 0.967  
**SOLUBILITY IN WATER (weight %):** 1.52% by volume



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**pH:** Not applicable  
**BOILING POINT:** - 320.5° F (-195.8° C)  
**MELTING POINT:** -346.0°F (-210.0°C)  
**VAPOR PRESSURE:** Not applicable.  
**VAPOR DENSITY (air = 1.0):** 0.07245 @ 70°F (21.1°C)  
**EVAPORATION RATE:** High **COMPARED TO:** Butyl Acetate  
**% VOLATILES:** Not applicable.  
**FLASH POINT:** Not applicable.  
 (Flash point method and additional flammability data are found in Section 5.)

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## 10. STABILITY AND REACTIVITY

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**NORMALLY STABLE? (CONDITIONS TO AVOID):**

Yes. Avoid direct heat and pressure. Nitrogen is stable at normal conditions of ordinary use, handling and storage under normal temperature and pressure.

**INCOMPATIBILITIES:**

None.

**HAZARDOUS DECOMPOSITION PRODUCTS:**

None.

**HAZARDOUS POLYMERIZATION:**

None.

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## 11. TOXICOLOGICAL INFORMATION

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**IMMEDIATE (ACUTE) EFFECTS:**

Simple asphyxiant.

**DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:**

None expected.

**OTHER DATA:**

None.

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## 12. ECOLOGICAL INFORMATION

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None expected.

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## 13. DISPOSAL CONSIDERATIONS

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**RCRA**

Is the unused product a RCRA hazardous waste if discarded? No  
If yes, the RCRA ID number is:

**OTHER DISPOSAL CONSIDERATIONS:**

Dispose in accordance to all applicable federal, state and local regulations.



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The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

## 14. TRANSPORT INFORMATION

<b>US DOT Proper Shipping Name:</b>	Non-regulated by HMR.
<b>US DOT HAZARD CLASS:</b>	Exempted from US DOT Hazard Material Regulations, including classification, pursuant to 49 CFR § 173.306(f)(1): "Accumulators installed in motor vehicles, construction equipment, and assembled machinery and designed and fabricated with a burst pressure of not less than five times their charged pressure at 70° F., when shipped, are not subject to the requirements of this subchapter [SubChapter C: Hazardous Materials Regulations]."

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

## 15. REGULATORY INFORMATION

### TOXIC SUBSTANCES CONTROL ACT (TSCA)

**TSCA INVENTORY STATUS:** Exempt; assembled machinery containing an accumulator is an article. Nitrogen gas is on the TSCA Inventory.

**OTHER TSCA ISSUES:** None

### SARA TITLE III/CERCLA

"Reportable Quantities" (RQ's) and/or "Threshold Planning Quantities" (TPQ's) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ (LB)</u>	<u>SARA EHS TPQ (LB)</u>
None		

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

**SECTION 311 HAZARD CLASS:** Immediate. (Pressure)

### **SARA 313 TOXIC CHEMICALS:**

The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
None.	



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### STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME

WEIGHT %    COMMENT

None.

### **ADDITIONAL REGULATORY INFORMATION:**

None.

### **WHMIS CLASSIFICATION (CANADA):**

Not determined.

### **FOREIGN INVENTORY STATUS:**

Not determined.

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## **16. OTHER INFORMATION**

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**CURRENT ISSUE DATE:** 5/28/03

**PREVIOUS ISSUE DATES:** 10/03/02, 9/12/01

### **CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:**

Change in DOT shipping classification from "accumulator" to "accumulator installed in assembled machinery" subject to DOT Hazmat exception under 49 CFR § 173.306(f)(1).

Other Information:

1. None.