DATE: 11/28/05 ACCT: 085511001
INDEX: D52032274 CAT NO: AC183794000 PO NBR: 29559L

**** MATERIAL SAFETY DATA SHEET ****

Diisobutylaluminum Hydride(DIBAL-H), 1.0M Solution in Hexane
97212

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Diisobutylaluminum Hydride(DIBAL-H), 1.0M Solution in Hexane
Catalog Numbers:
AC183790000, AC183794000
Synonyms:
DIBAL-H
Company Identification (Europe): Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium
Company Identification (USA): Acros Organics
One Reagent Lane
Fairlawn, NJ 07410
For information in North America, call: 800-ACROS-01
For information in Europe, call: 0032(0) 14575211
For emergencies in the US, call CHEMTREC: 800-424-9300
For emergencies in Europe, call: 0032(0) 14575299

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
110-54-3	Hexane	~85.5	203-777-6
1191-15-7	Diisobutylaluminum hydride	~14.5	214-729-9

Hazard Symbols: F C
Risk Phrases: 11 14/15 35

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: colorless liquid liquid.
Danger! Corrosive. Highly flammable. May cause central nervous system effects. Causes eye and skin burns. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Reacts violently and/or explosively with water, steam or moisture.
Target Organs: Central nervous system.

Potential Health Effects

Eye:
Causes eye burns. May cause blurred vision, tearing, and conjunctivitis.

Skin:
Causes skin burns. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.

Ingestion:
May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May cause central nervous system effects.

Inhalation:
Causes chemical burns to the respiratory tract. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. May cause central, peripheral, and autonomic nervous system effects. May cause hypotension, depressed cardiac output, and bradycardia.

Chronic:
Prolonged or repeated skin contact may cause defatting and dermatitis.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin:
Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation:
Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician:

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Treat symptomatically and supportively.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
Evacuate area and fight fire from a safe distance. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water Reactive. Material will react with water and may release a flammable and/or toxic gas. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Will be easily ignited by heat, sparks or flame. Containers may explode if exposed to fire.

Extinguishing Media:
For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective. Water may spread fire. If water is the only media available, use in flooding amounts. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out.

Autoignition Temperature:> 225 deg C (> 437.00 deg F)
Flash Point: > -22C
Explosion Limits, lower:1.1 (approx)
Explosion Limits, upper:7.5 (approx)
NFPA Rating: (estimated) Health: 3; Flammability: 3; Instability: 1

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Scoop up with a nonsparking tool, then place into a suitable container for disposal. Remove all sources of ignition. Isolate area and deny entry. Provide ventilation. Do not expose spill to water. Do not use combustible materials such as paper towels to clean up spill.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not allow water to get into the container because of violent reaction. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep from contact with moist air and steam.

Storage:
Keep away from heat, sparks, and flame. Keep away from heat and flame. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from water. Refrigerator/flammables. Keep containers tightly closed.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Hexane	50 ppm; skin - potential for cutaneous absorption	50 ppm TWA; 180 mg/m3 TWA 1100 ppm IDLH	500 ppm TWA; 1800 mg/m3 TWA
Diisobutylaluminum hydride	10 mg/m3 TWA (metal dust) (listed under ** no name **).	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable

		dust) (listed under ** no name **).	fraction) (listed under ** no name **).

OSHA Vacated PELs:
Hexane:
50 ppm TWA; 180 mg/m3 TWA
Diisobutylaluminum hydride:
15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) (listed under ** no name **)

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to minimize contact with skin.

Respirators:
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State:	Liquid
Color:	colorless liquid
Odor:	gasoline-like
pH:	Not available.
Vapor Pressure:	.150 mm Hg @ 25C
Vapor Density:	approx. 3.0
Evaporation Rate:	Not available.
Viscosity:	Not available.
Boiling Point:	> 110 deg C
Freezing/Melting Point:	Not available.
Decomposition Temperature:	
Solubility in water:	Insoluble.
Specific Gravity/Density:	.8000g/cm3
Molecular Formula:	Mixture
Molecular Weight:	

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
Stable under normal temperatures and pressures. Combines vigorously or explosively with water.
Conditions to Avoid:
Incompatible materials, ignition sources, dust generation, exposure to air, excess heat, strong oxidants, exposure to moist air or water, mechanical shock.
Incompatibilities with Other Materials:
Strong oxidizing agents, acids.
Hazardous Decomposition Products:
Hydrogen chloride, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, aluminum oxide.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#:
CAS# 110-54-3: MN9275000
CAS# 1191-15-7: BD0710000
LD50/LC50:
CAS# 110-54-3: Draize test, rabbit, eye: 10 mg Mild; Inhalation, rat: LC50 = 48000 ppm/4H; Oral, rat: LD50 = 25 gm/kg.
CAS# 1191-15-7.
Carcinogenicity:
Hexane -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Diisobutylaluminum hydride -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information available.
Teratogenicity:
No information available.
Reproductive Effects:
No information available.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.

Other Studies:
See actual entry in RTECS for complete information.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
Cas# 110-54-3: LC50(96Hr.) Rainbow Trout = 4.14 mg/L; Flow-through Bioassay LC50(96Hr.)Fathead Minnow=5.10 mg/L LC50(96Hr.)Bluegill = 4.12 mg/L LC50 (48Hr.) Water Flea = 3.87 mg/L

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: METAL ALKYL HYDRIDES, WATER-REACTIVE, N.O.S.
Hazard Class: 4.2
UN Number: UN3050
Packing Group: I
Canadian TDG
No information available.

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 110-54-3 is listed on the TSCA inventory.
CAS# 1191-15-7 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
SARA
CERCLA Hazardous Substances and corresponding RQs
CAS# 110-54-3: 5000 lb final RQ; 2270 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 110-54-3: acute, chronic, flammable.
Section 313
This material contains Hexane (CAS# 110-54-3, 85 5%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
This material contains Diisobutylaluminum hydride (listed as ** undefined **), 14 5%, (CAS# 1191-15-7) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
Clean Air Act:
CAS# 110-54-3 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
Hexane can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, Massachusetts.
Diisobutylaluminum hydride can be found on the following state right to know lists: California, (listed as ** no name **), New Jersey, (listed as ** no name **), Pennsylvania, Minnesota, (listed as ** no name **), Massachusetts.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: F C
Risk Phrases:
R 11 Highly flammable.

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R 14/15 Reacts violently with water liberating highly flammable gases.
R 35 Causes severe burns.

Safety Phrases:
S 16 Keep away from sources of ignition - No smoking.
S 23 Do not inhale gas/fumes/vapour/spray.
S 30 Never add water to this product.
S 36 Wear suitable protective clothing.
S 43A In case of fire, use dry chemical (never use water).

WGK (Water Danger/Protection)
CAS# 110-54-3: 1
CAS# 1191-15-7: 2

United Kingdom Occupational Exposure Limits
CAS# 110-54-3: OES-United Kingdom, TWA 20 ppm TWA; 72 mg/m3 TWA
CAS# 1191-15-7: OES-United Kingdom, TWA (listed as ** undefined **): 10 mg/m3 TWA (total inhalable dust); 4 mg/m3 TWA (respirable dust)

United Kingdom Maximum Exposure Limits

Canada
CAS# 110-54-3 is listed on Canada's DSL List.
CAS# 1191-15-7 is listed on Canada's DSL List.
This product has a WHMIS classification of B2, E.
CAS# 110-54-3 is listed on Canada's Ingredient Disclosure List.
CAS# 1191-15-7 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits
CAS# 110-54-3: OEL-AUSTRALIA:TWA 50 ppm (180 mg/m3)
OEL-BELGIUM:TWA 50 ppm (176 mg/m3)
OEL-DENMARK:TWA 50 ppm (180 mg/m3)
OEL-FINLAND:TWA 50 ppm (180 mg/m3);STEL 150 ppm (530 mg/m3)
OEL-FRANCE:TWA 50 ppm (170 mg/m3)
OEL-GERMANY:TWA 50 ppm (180 mg/m3)
OEL-HUNGARY:TWA 100 mg/m3;STEL 200 mg/m3;Skin
OEL-JAPAN:TWA 40 ppm (140 mg/m3);Skin
OEL-THE NETHERLANDS:TWA 100 ppm (360 mg/m3)
OEL-THE PHILIPPINES:TWA 500 ppm (1800 mg/m3) JAN9
OEL-POLAND:TWA 400 mg/m3
OEL-RUSSIA:TWA 40 ppm;STEL 300 mg/m3
OEL-SWEDEN:TWA 25 ppm (90 mg/m3);STEL 50 ppm (180 mg/m3)
OEL-SWITZERLAND:TWA 50 ppm (180 mg/m3);STEL 100 ppm (360 mg/m3)
OEL-TURKEY:TWA 500 ppm (1800 mg/m3)
OEL-UNITED KINGDOM:TWA 100 ppm (360 mg/m3);STEL 125 ppm
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV
CAS# 1191-15-7: OEL-AUSTRALIA:TWA 2 mg(Al)/m3
OEL-BELGIUM:TWA 2 mg(Al)/m3
OEL-DENMARK:TWA 2 mg(Al)/m3
OEL-FRANCE:TWA 2 mg(Al)/m3
OEL-THE NETHERLANDS:TWA 2 mg(Al)/m3
OEL-RUSSIA:TWA 2 mg(Al)/m3
OEL-SWEDEN:TWA 2 mg(Al)/m3
OEL-SWITZERLAND:TWA 2 mg(Al)/m3
OEL-UNITED KINGDOM:TWA 2 mg(Al)/m3
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 6/03/1999 Revision #3 Date: 2/21/2002

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.