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## HD Clean

# Safety Data Sheet

According to U.S.A. Federal Hazcom 2012

### 1. Identification

#### 1.1. Product identifier

Code:

**Armus\_GA\_090721-001**

Product name

**Biodegradable Cleaner**

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Emulsifier & cleaner of grease, oils and greasy residues**

#### 1.3. Details of the supplier of the safety data sheet

Name

**Armus LLC**

Full address

**137 Grand Street 3rd floor NY**

District and Country

**NY 10013**

**United States**

**Tel. (+1) 9179575383**

e-mail address of the competent person  
responsible for the Safety Data Sheet

[bill@armussolutions.com](mailto:bill@armussolutions.com)

#### 1.4. Emergency telephone number

For urgent inquiries refer to

**Tel. (+1) 9179575383 United States**

### 2. Hazards identification

#### 2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard pictograms:

Skin corrosion, category 1

Causes severe skin burns and eye damage.

Serious eye damage, category 1

Causes serious eye damage.



Signal words:

**DANGER**

## HD Clean

### Hazard statements:

**H314** Causes severe skin burns and eye damage.

### Precautionary statements:

### Prevention:

**P260** Do not breathe fume, mist or spray.  
**P280** Wear protective gloves/ protective clothing / eye protection / face protection.  
**P264** Wash with plenty of water and soap thoroughly after handling.

### Response:

**P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**P301+P330+P331** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
**P303+P361+P353** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water / shower.  
**P310** Immediately call a POISON CENTER or a doctor.  
**P304+P340** IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
**P363** Wash contaminated clothing before reuse.

### Storage:

**P405** Store locked up.

### Disposal:

**P501** Dispose of contents or container according to local/national/international regulations.

### 2.2 Other hazards

Information not available.

## 3. Composition / information on ingredients

### 3.1. Mixtures

Contains:

Identification	Conc. %	Classification:
<b>2-BUTOXYETHANOL</b> CAS 111-76-2 EC 203-905-0 INDEX 603-014-00-0	2	Acute toxicity, category 4 H302, Acute toxicity, category 4 H332, Eye irritation, category 2 H319, Skin irritation, category 2 H315
<b>SODIUM METASILICATE</b> CAS 10213-79-3 EC 229-912-9 INDEX -	1.2	Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Specific target organ toxicity - single exposure, category 3 H335



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### ALCOHOLS, C9-11- ETHOXYLATED

1.2

Eye irritation, category 2 H319

CAS 68439-46-3

EC 614-482-0

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The full wording of hazard (H) phrases is given in section 16 of the sheet.

## 4. First-aid measures

### 4.1. Description of first aid measures

EYES: Remove contact lenses if present. Wash immediately with plenty of water for at least 30-60 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Get medical advice/attention.

INGESTION: Have the subject drink as much water as possible. Get medical advice/attention. Do not induce vomiting unless explicitly authorized by a doctor.

INHALATION: Get medical advice/attention immediately. Remove victim to fresh air, away from the accident scene. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.

### 4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

### 4.3. Indication of any immediate medical attention and special treatment needed

Information not available

## 5. Fire-fighting measures

### 5.1. Extinguishing media

#### SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder, and water spray.

#### UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

### 5.2. Special hazards arising from the substance or mixture

#### HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

### 5.3. Advice for firefighters

#### GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.



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## SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal firefighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

## 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

### 6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

### 6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

### 6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

## 7. Handling and storage

### 7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink, or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

### 7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a cool and well-ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

### 7.3. Specific end use(s)

Information not available

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### 8. Exposure controls / personal protection

#### 8.1. Control parameters

Regulatory References:

USA	NIOSH-REL	NIOSH publication NO. 2005-149, 3 <sup>rd</sup> printing, 2007.
USA	OSHA-PEL	Occupational Exposure Limits – Limits for Air Contaminants TABLE Z-1-1910-1000
USA	CAL/OSHA-PEL	California Division of Occupational Safety and Health (Cal-OSHA) Permissible Exposure Limits (PELs).
EU	OEL EU	Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2020

#### 2-BUTOXYETHANOL

##### Threshold Limit Value

Type	Country	TWA / 8h mg/m3	ppm	STEL/15min mg/m3	Ppm	Remarks / Observations
OEL	EU	98	20	246	50	SKIN
TLV-ACGIH	-	97	20			
OSHA	USA	240	50			SKIN
CAL/OSHA	USA	97	20			SKIN
NIOSH	USA	24	5			SKIN

Legend:

(C) = CLEANING ; INHAL = Inhalation Fraction ; RESP = Respiratory Fraction ; THORA = Thoracic Fraction

#### 8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration. Personal protective equipment must comply with current regulations.

##### HAND PROTECTION

Protect hands with category III work gloves (OSHA 29 CFR 1910.138).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability. The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

##### SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.

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### EYE PROTECTION

Wear airtight protective goggles (OSHA 29 CFR 1910.133).

### RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose limit of use will be defined by the manufacturer (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapors of various kinds and/or gases or vapors containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odorless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.

### ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	Liquid
Color	Not available
Odor	Not available
Odor threshold	Not available
pH	13.4
Melting point / freezing point	Not available
Initial boiling point	Not available
Boiling range	Not available
Flash point	>93 °C
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Lower flammability limit	Not available
Upper flammability limit	Not available
Lower explosive limit	Not available
Upper explosive limit	Not available
Vapor pressure	Not available
Vapor density	Not available
Relative density	Not available
Solubility	Not available
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available

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Explosive properties

Not available

Oxidizing properties

Not available

### 9.2. Other information

Information not available.

## 10. Stability and reactivity

### 10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

SODIUM METASILICATE

The aqueous solutions act as: strong bases.

Corrodes: aluminum, zinc, tin, aluminum alloys, zinc alloys, tin alloys.

2-BUTOXYETHANOL

Decomposes under the effect of heat.

### 10.2. Chemical stability

The product is stable in normal conditions of use and storage.

### 10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

SODIUM METASILICATE

Reacts violently with: acids.

2-BUTOXYETHANOL

May react dangerously with: aluminum, oxidizing agents.

Forms peroxides with: air.

### 10.4. Conditions to avoid

None in particular. However, the usual precautions used for chemical products should be respected.

2-BUTOXYETHANOL

Avoid exposure to: sources of heat or open flames.

POTASSIUM HYDROXIDE

Unstable on exposure to air. Freezing.

### 10.5. Incompatible materials

Information not available.

### 10.6. Hazardous decomposition products

2-BUTOXYETHANOL

May develop: hydrogen.



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### 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

#### 11.1. Information on toxicological effects

##### Metabolism, toxicokinetics, mechanism of action and other information

Information not available

##### Information on likely routes of exposure

Information not available

##### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

##### Interactive effects

Information not available

##### ACUTE TOXICITY

2-BUTOXYETHANOL

LD50 (Oral) 615 mg/kg

LD50 (Dermal) 05 mg/kg RABBIT

LC50 (Inhalation) 2.2 mg/l/4h

ALCOHOLS, C9-11, ETHOXYLATED

LD50 (Oral) >2000 mg/kg

##### SKIN CORROSION / IRRITATION

Corrosive for the skin.

Classification according to the experimental pH value.

##### SERIOUS EYE DAMAGE / IRRITATION

Causes eye damage.

##### RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

##### GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

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### CARCINOGENICITY

Does not meet the classification criteria for this hazard class

Carcinogenicity Assessment:

111-76-22-BUTOXYETHANOL

ACGIH: A3

IARC: 3

### REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

### STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

### STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

### ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

## 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

### 12.1. Toxicity

ALCOHOLS, C9-11, ETHOXYLATED

LCD50 – for Fish	> 1 mg/l/96h	1-10
EC50 – for Crustacea	> 1 mg/l/48h	1-10
EC50 – for Algae / Aquatic Plants	> 1 mg/l/72h	1-10

### 12.2. Persistence and degradability

2-BUTOXYETHANOL

Solubility in water	1000-10,000 mg/l
Rapidly degradable	

### 12.3. Bioaccumulative potential

2-BUTOXYETHANOL

Partition coefficient: n-octanol/water 0.81

### 12.4. Mobility in soil

Information not available

### 12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0.1%.

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### 12.6. Other adverse effects

Information not available

## 13. Disposal considerations

### 13.1. Waste treatment methods

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.

Disposal must be performed through an authorized waste management firm, in compliance with national and local regulations.

### CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

## 14. Transport information

### 14.1. UN number

ADR / RID, IMDG, 3266  
IATA:

### 14.2. UN proper shipping name

ADR / RID: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (METASILICATO DI SODIO PENTAIDRATO)  
IMDG: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM METASILICATE)  
IATA: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM METASILICATE)

### 14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8

IMDG: Class: 8 Label: 8

IATA: Class: 8 Label: 8



### 14.4. Packing group

ADR / RID, IMDG, III  
IATA:

### 14.5. Environmental hazards

ADR / RID: NO  
IMDG: NO  
IATA: NO



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### 14.6. Special precautions for user

ADR / RID:	HIN – Kemler: 80 Special Provision: -	Limited Quantities: 5L	Tunnel restriction code: (E)
IMDG:	EMS: F-A, S-B	Limited Quantities: 5L	
IATA:	Cargo:	Maximum quantity: 60L	Packaging instructions: 856
	Pass.:	Maximum quantity: 5L	Packaging instructions: 852
	Special Instructions:		A3, A803

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Information not relevant

## 15. Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### U.S. Federal Regulations

##### TSCA:

All components are listed on TSCA Inventory.

##### Clean Air Act Section 112(b):

No component(s) listed.

##### Clean Air Act Section 602 Class I Substances:

No component(s) listed.

##### Clean Air Act Section 602 Class II Substances:

No component(s) listed.

##### Clean Water Act

##### Priority Pollutants:

No component(s) listed.

##### Clean Water Act

##### Toxic Pollutants:

No component(s) listed.

##### DEA List I Chemicals (Precursor Chemicals):

No component(s) listed.

##### DEA List II Chemicals (Essential Chemicals):

No component(s) listed.

##### EPA List of Lists:

313 Category Code:

No component(s) listed.



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EPCRA 302 EHS TPQ:

No component(s) listed.

EPCRA 304 EHS RQ:

No component(s) listed.

CERCLA RQ:

1310-58-3

POTASSIUM HYDROXIDE

EPCRA 313 TRI:

No component(s) listed.

RCRA Code:

No component(s) listed.

CAA 112 (r) RMP TQ:

No component(s) listed.

### State Regulations

Massachusetts:

111-76-2

2-BUTOXYETHANOL

1310-58-3

POTASSIUM HYDROXIDE

Minnesota:

111-76-2

2-BUTOXYETHANOL

1310-58-3

POTASSIUM HYDROXIDE

New Jersey:

111-76-2

2-BUTOXYETHANOL

1310-58-3

POTASSIUM HYDROXIDE

New York:

1310-58-3

POTASSIUM HYDROXIDE

Pennsylvania:

111-76-2

2-BUTOXYETHANOL

1310-58-3

POTASSIUM HYDROXIDE


California:

111-76-2

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POTASSIUM HYDROXIDE

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Proposition 65:

This product does not contain any substances known to the State of California to cause cancer, reproductive harm or birth defects.

International Regulations

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

## 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

- H302 Harmful if swallowed.
- H332 Harmful if inhaled.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H315 Causes skin irritation.
- H335 May cause respiratory irritation.

LEGEND:

- 313 CATEGORY CODE: Emergency Planning and Community Right-to Know Act Section 313 Category Code
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAA 112 ® RMP TQ: Risk Management Plan Threshold Quantity (Clean Air Act Section 112®)
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CERCLA RQ: Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
- CLP: EC Regulation 1272/2008
- DEA: Drug Enforcement Administration
- EmS: Emergency Schedule
- EPA: US Environmental Protection Agency
- EPCRA: Emergency Planning and Community Right-to Know Act
- EPCRA 302 EHS TPQ: Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
- EPCRA 304 EHS RQ: Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
- EPCRA 313 TRI: Toxics Release Inventory (Section 313 Category Code)
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization

- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PEL: Predicted exposure level
- RCRA Code: Resource Conservation and Recovery Act Code
- REL: Recommended exposure limit
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TSCA: Toxic Substances Control Act
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- WHMIS: Workplace Hazardous Materials Information System.


**GENERAL BIBLIOGRAPHY:**

- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy
- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication Standard (HCS 2012)
- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112® of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minnesota Chapter 5206 Department of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

**Note for users:**

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

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The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.  
Provide appointed staff with adequate training on how to use chemical products.

#### CALCULATION METHODS FOR CLASSIFICATION

Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12. The data for evaluation of chemical-physical properties are reported in section 9.

Changes to previous review:

The following sections were modified:

02 / 03 / 09 / 11 / 12 / 14 / 16.



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