



SAFETY DATA SHEET

SECTION 1 — IDENTIFICATION

Product Identifier

Product Name CLAVECORE LT™

Product Code

Relevant identified uses of the substance or mixture and uses advised against

Recommended use Water soluble material for forming molds and cores.

Details of the supplier of the safety data sheet

Manufacturer Advanced Ceramics Manufacturing, LLC.

7800 South Nogales Highway

Tucson, AZ 85756

Telephone (General)

520.547.0850

Emergency Telephone Number

800.554.9964 - Hazardous Materials Support Center

800.424.9300 - CHEMTREC (Spill related emergencies)

SECTION 2 — HAZARD(S) IDENTIFICATION

United States (US)

Classification of the substance or mixture

ClaveCore LT™ has no known hazardous properties. The formula is proprietary information and is the property of Advanced Ceramics Manufacturing.

Label Components

The product does not require a danger label.

Other Dangers



Eye Contact – Direct contact may cause irritation.

Skin Contact – Direct contact may cause irritation.

Inhalation – When machining in the cured state, repeated exposure to dust may cause delayed lung injury.

Ingestion – Direct contact may cause irritation.

Signs & Symptoms of Exposure to Airborne Dust – May result in cough, dyspnea, wheezing, or impaired pulmonary functions.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Characterization Mixture (water-soluble core material)

Mixtures The product does not contain substances classified as dangerous in accordance to OSHA 29 CFR 1910.1200 HCS and CE Regulation n° 1272/2008 (CLP).

Materials:	WT%	TLV (mg/m³)	PEL (mg/m³)	CAS Number
Water Soluble Binder	70%-95%	NE	NE	25805-17-8
Expandable Microspheres	5%-30%	NE	15	
	(T) - Total	(R) - Respirable	(I) - Inhalable	(NE) - Not Established

SECTION 4 — FIRST-AID MEASURES

Contact with Eyes Flush eyes with running water for 15 minutes — lift upper and lower eyelids. Seek medical attention.

Contact with Skin Wash skin thoroughly with mild soap and water.

Inhalation Move the injured person to fresh air. If not breathing, initiate pulmonary resuscitation. If breathing difficult, give oxygen. Get medical attention.

Ingestion Rinse mouth with water (do not swallow) until no longer sticky. Consult a physician.

Most important symptoms and effects, both acute and delayed

Refer to section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Refer to section 4.

SECTION 5 — FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media Foam or water spray is recommended

Unsuitable Extinguishing Media

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards Material decomposes above 300° C and toxic fumes may be generated.

Advice for Firefighters Containers close to fire should be transferred to a safe place. Always wear full fire prevention gear: hardhat with visor, fireproof clothing, work gloves and a respirator.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions	Persons not wearing appropriate protective equipment should be excluded from the area of the spill until clean up has been completed. Use respiratory mask when handling the product if dusting cannot be avoided. When handling the material, use rubber gloves to prevent skin contact.
Emergency Procedures	If material is spilled, eliminate all sources of ignition and prevent spark formation as a result of static electricity.

Environmental Precautions

No specific requirement

Methods and material for containment and cleaning up

Containment/Clean-up Measures	Shovel spilled material into containers. Thoroughly sweep up residual material. Wash spill site after material pick-up is complete.
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SECTION 7 — HANDLING AND STORAGE

Precautions to be taken in Handling and Storing

Handling	Open container in a well ventilated area. Allow enough time to permit escape of harmful and flammable vapors before emptying. Maintain adequate ventilation when preparing mixtures and during the expansion process. The release of blowing agent is increased during expansion. Use grounded electrical equipment.
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Conditions for safe storage, including any incompatibilities

Storage	Keep in closed containers when not in use. Store in a cool dry place with good ventilation at a maximum of 40° C. Protect from moisture. Do not smoke where dust is present.
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Specific End Use

Not indicated.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

PNOS	TLV-TWA _{ACGIH} = No exposure limit value known. TLV-TWA _{ACGIH} = No exposure limit value known.
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Exposure Control

Engineering Measures/Controls	Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable exposure limit values
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Personal Protective Equipment Pictograms



Respiratory Protection	Use of a NIOSH approved respirator where dust is generated is recommended.
Eye Protection	Chemical resistant safety glasses or goggles as a minimum.
Skin Protection	Rubber gloves should be worn to prevent excessive or repeated skin contact.
Other Clothing & Equipment	Work clothing or coveralls to minimize skin contact.
General Industrial Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Do not eat, drink or smoke during use. Keep away from food and feedstuffs. Do not breathe dust. Avoid creating dust.
Ventilation	Maintain positive ventilation.
Environmental Exposure Controls	Follow best practice for site management and disposal of waste.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Information on Physical and Chemical Properties

Appearance:	Light yellow powder
Smell:	Not characterized
Odor threshold:	Not available
pH:	Slightly basic when dispersed in water
Melting point / freezing point:	Not available
Initial boiling point and boiling range:	Not available
Flash point:	Not available
Evaporation rate:	Not available
Flammability (solid, gas):	Not available
Upper / lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	0.6-0.8 g/cm ³
Solubility:	Bulk of mixture is soluble in water
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>170° C
Decomposition temperature:	230° - 300° C
Viscosity:	Varies
Explosive properties:	Dust explosion hazard K _{st} = 240 [bar*m/s]; MIE (minimum Ignition Energy) = < 3 [mJ]; MOC (Minimal Oxygen Concentration) = 14 vol-%; Lowest explosion concentration = 40 g/m ³ air

Oxidizing properties:	Not available
SECTION 10 — STABILITY AND REACTIVITY	
Reactivity	The product is stable under normal conditions of use and storage and no hazardous reaction will occur.
Chemical stability	The product is stable under normal conditions of use and storage.
Possibility of hazardous reactions	If the product is stored at temperatures above 50° C the release of blowing agent increases with a risk of explosive air-mixtures
Conditions to avoid	Refer to Possibility of hazardous reactions. Moisture. Temperatures above 300° C may produce toxic fumes
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Nitrogen oxides, carbon monoxide, carbon dioxide
TSCA Listing	All ingredients are on the TSCA inventory, or exempt.
SECTION 11 — TOXICOLOGY INFORMATION	
Information on toxicological effects	Dust may cause transient irritation in the respiratory organ. When stored in closed containers the concentration of monomers in the vapor phase may reach such a level that inhalation is harmful. Contact with eyes may cause mechanical irritation. The frequent and prolonged contact with skin may cause irritation and dryness. No acute health effect anticipated due to chemical composition.
SECTION 12 - ECOLOGICAL INFORMATION	
Toxicity	Information not available.
Persistence and degradability	Information not available.
Bio accumulative potential	Information not available.
Mobility in Soil	Information not available.
Other adverse effects	Information not available.
Other Information	Information not available.
SECTION 13 - DISPOSAL CONSIDERATIONS	
Waste treatment methods	Disposal must be made according to national or local law. These provisions shall also apply to contaminated containers. It is therefore recommended to make contact with the authorities in charge or approved specialist companies that can give you guidance on how to prepare for disposal. Appropriate disposal could be combustion, recycling, disposal site.
SECTION 14 - TRANSPORT INFORMATION	
	The product is not classified as dangerous according to the provisions of existing legislation on the transport of dangerous goods by road (ADR) and by Rail (RID), by sea (IMDG Code) and by air (IATA).
UN Number	Not applicable.
UN Proper shipping name	Not applicable.
Transport hazard class(es)	Not applicable.
Packing group	Not applicable.
Environmental hazards	Not applicable.
Special precautions for user	Not applicable.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
SECTION 15 - REGULATORY INFORMATION	
Safety, health and environmental regulations / legislation specific for the substance or mixture	
<ul style="list-style-type: none"> • OSHA 29 CFR 1910.1200 HCS - Consolidated Safety at the workplace • OSHA 29 CFR 1910.120 HCS - Hazardous Waste Operations and Emergency Response 	
SECTION 16 — OTHER INFORMATION	
Last Revision Date	12/1/2020
Preparation Date	10/19/2017
Key literature references and sources for data:	<ul style="list-style-type: none"> • 29 CFR 1910.1200(f) and Appendix C of 29 CFR 1910.1200 (and subsequent amendments and adjustments) • OSHA GHS (and subsequent amendments and adjustments) • OSHA Hazard Communication Standard (HCS) (and subsequent amendments and adjustments) • 1910 Subpart G - Occupational Health and Environmental Control (and subsequent amendments and adjustments) • Safety data sheet of the supplier of the product
Acronyms:	
ACGIH:	American Conference of Governmental Industrial Hygienists
ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS:	Chemical Abstracts Service
CFR:	Code of Federal Regulations
CLP:	Classification, Labeling and Packaging
EINECS:	European Inventory of Existing Chemical Substances
GHS:	Globally Harmonized System
HCS:	Hazard Communication Standard
IATA:	International Air Transport Association
IMDG Code:	International Maritime Code for Dangerous Goods
OSHA:	Occupational Safety and Health Administration
PBT:	Persistent, Bio accumulative, Toxic

PEL:	Permissible Exposure Limit
PNOS:	Particles Not Otherwise Specified
REACH:	Registration, Evaluation, Authorization and Restriction of Chemicals
RID:	Regulation on the Inland transport of Dangerous goods by rail
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act
TWA:	Time-Weighted Average
vPvB:	very Persistent, very Bio accumulative
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