

HANWHA

Ethylene Vinylacetate Copolymer



1316

Foam Molding Grade

MELT INDEX 1.8

VA CONTENT 19.0

HANWHA EVA 1316 is manufactured by Dow autoclave high pressure process and designed for variety of foam molding application such as shoes and sandals etc.. EVA 1316 is well known for its excellent processability and high quality assurance.

This product complies with U.S. FDA regulation 21 CFR 177.1350 (a)(1)

■ Outstanding Properties

Excellent Foam Molding Property
Very Good Mechanical Properties
Excellent Loading Property of Various Fillers
Good Elastic Property of Sponge

■ Processing Conditions

Kneader : 80 ~ 100°C
Roll Mill : 90°C

■ Additives

No Additives

■ Physical Properties

Physical Properties	Unit	Test Method	Value
Melt Index	g/10min	ASTM D1238	1.8
VA Content	wt%	HCC Method ⁽³⁾	19.0
Density	g/cm ³	ASTM D1505	0.940
Vicat Softening Point	°C	ASTM D1525	59
Melting Point	°C	ASTM D3417	85
Tensile Strength at Break	kg/cm ²	ASTM D638	135
Elongation at Break	%	ASTM D638	850
Brittleness Temperature, F ₀	°C	ASTM D746	<-76
Hardness	Shore A/D	ASTM D2240	90/36

1. These are typical properties : not to be construed as specification.
2. The value for this property is dependent on part geometry and fabrication conditions.
3. Elemental Analyzer and FT-IR



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MATERIAL SAFETY DATA SHEET

1. Identification of the substance or mixture and of the supplier

GHS product identifier : HANWHA EVA 1316

Recommended use of the chemical and restrictions on use.

- Recommended use: industrial resin
- Restrictions on use: Use for recommended use.

Supplier identifier.

- Manufacturers information

- Manufacturers name: Hanwha Chemical Corporation
- Address: 482, Sanggae-dong, Nam-gu, Ulsan, Korea (Ulsan plant)
- Respondent: PE production team
 - Tel: +82-52-279-2201, Fax: +82-52-279-2204

- Supplier information

- Supplier name: Hanwha Chemical Corporation
- Address: Hanwha Building, 1, Janggyo-dong, Jung-gu, Seoul, Korea (PE department)
- Respondent: EVA sales team
 - Tel: +82-2-729-4284, Fax: +82-2-729-1405

- Emergency phone number: +82-52-279-2210

2. Hazards identification

GHS classification of the substance/mixture: Not available

GHS label elements, including precautionary statements.

- Pictogram and symbol: Not available
- Signal word: Not available
- Hazard statements: Not available
- Precautionary statements:
 - Precaution: Not available
 - Treatment: Not available
 - Storage: Not available
 - Disposal: Not available

NFPA

- health: **1** fire: **1** reactive: **0**

3. Composition/information on ingredients

Chemical Name	Common Name Synonyms	CAS number	Content (%)
ETHYLENE-VINYL ACETATE COPOLYMER	EVA	24937-78-8	> 99.5

4. First aid measures

Eye contact:

- Keep away from spilled material, if you effects of exposure.
- In case of contact with substance, Wash off immediately with plenty of water for at least 15 minutes.
- In case of contact with substance, get medical attention.

Skin contact:

- Remove and isolate contaminated clothing and shoes. Wash skin with soap and water for at least 15 minutes.
- Get medical attention immediately if symptoms persist.
- Wash contaminated clothing and shoes before reuse.

Inhalation:

- Move victim to fresh air.
- Get medical attention immediately if irritation and symptoms persist.
- Use first aid treatment according to the nature of the injury.
- Give artificial respiration if victim is not breathing.

Ingestion:

- If swallowed, immediately call a POISON CENTER or doctor/physician.
- If vomiting occurs, keep head lower than hips to prevent aspiration.
- If person is unconscious, turn head to side.
- Get medical attention immediately if irritation and symptoms persist.

Acute and delayed symptoms/effects

- Inhalation, Skin contact, Eye contact : May cause skin, eye irritation.

Indication of immediate medical attention and notes for physician:

- Call 911 or emergency medical service. Get immediate medical advice/attention, if you needed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. Firefighting measures

**Suitable (and unsuitable) extinguishing media**

- Suitable extinguishing media: Dry chemical, CO₂, water spray, regular foam
- unsuitable extinguishing media: Not available
- In case of major fire and large quantities:
 - regular extinguishing agent, fine water spray
 - Move containers from fire area if you can do it without risk.

Tank/trailer/train truck fire:

- Do not get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

Specific hazards arising from the chemical

- Thermal decomposition products: CO, CO₂, aldehyde, organic acid, alcohol
- Fires and an explosion
 - Some may burn but none ignite readily.
 - Containers may explode when heated

Special protective equipment and precautions for fire-fighters

- Avoid inhalation of the substance or combustion products.
- Stay upwind.
- Keep out of low areas.

6. Accidental release measures**Personal precautions, protective equipment and emergency procedures:**

- Stop leak if you can do it without risk.
- Keep unauthorized personnel away.
- Prevent leak by appropriate protective equipment.
- Ventilate the exposed area.

Environmental precautions and protective procedures

- Atmosphere: Provide appropriate ventilation.
- Land: Make an embankment for further processing.
- Underwater: Prevent entry into waterways, sewers, basements.

The methods of purification and removal

- Small spill:
 - Absorb with non-combustible material.
- Large spill:
 - Make an embankment for further processing.
 - Eliminate all ignition sources.



7. Handling and storage

Precautions for safe handling:

- Store and use by regulation of central government and local self-government.
- Provide local exhaust ventilation system.
- Wash contaminated clothing after use.

Conditions for safe storage:

- Store and use by regulation of central government and local self-government.
- Store in cool and dry place.

8. Exposure controls/personal protection

Occupational Exposure limits

- Korean Occupation of Safety and Health Regulation : Not available
- ACGIH: Total dust TWA = 15 mg/m³ (8-hr day), TWA = 5 mg/m³ (8-hr day, Respirable fraction)
- OSHA: Total dust TWA = 10 mg/m³ (8-hr day, inhalable fraction), TWA = 3 mg/m³ (8-hr day, Respirable fraction)
- NIOSH: Not available
- Biological exposure index : Not available
- EU Regulation: Not available

Appropriate engineering controls:

- Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit value.
- Check legal suitability of exposure level.

Personal protective equipment

- Respiratory protection:
-Respiratory protection: Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment.
- Eye/Face protection:
-An eye wash unit and safety shower station should be available nearby work place.
-Wear facepiece with goggles to protect from scattering toxic substance.
- Hand protection: Wear appropriate chemical-resistant gloves that protect chemicals directly.
- Body protection: Wear appropriate protective chemical-resistant clothing.

9. Physical and chemical properties

Appearance: Solid (white or transparent pellet)

Odor: sour odor (vinegar odor)

Odor threshold: Not available



Tatse: Not available

Taste threshold: Not available

pH: Not applicable

Melting point/freezing point: 60 ~ 105 °C

Initial boiling point and boiling range: Not available

Flash point: >270 °C

Evaporation rate: Not applicable

Flammability : Not available

Upper/lower flammability or explosive limits: Not available

Vapor pressure: Not applicable

Vapor density: Not applicable

Relative density: Not available

Solubility (ies): Negligible

Specific gravity: 0.920 ~ 0.960 (Water=1)

Partition coefficient: n-octanol/water: Not available

Auto ignition temperature: >400 °C

Decomposition temperature: Not available

Viscosity: Not available

Molecular weight: tens of thousands ~ hundreds of thousands (polymer)

10. Stability and reactivity

Chemical stability: Stable under normal temperatures and pressures.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid (e.g., static discharge, shock or vibration):

- Avoid heat, sparks, flames and other sources of ignition.
- Avoid contact with prohibited mixture materials.
- Avoid release to the environment.



Incompatible materials: strong oxidizing agents such as nitrates, chlorates, peroxides

Hazardous decomposition products: May cause methane, propane, carbon oxide, aldehyde and other organic vapors when thermal decomposition.

11. Toxicological information

Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);

- Inhalation, Skin contact, Eye contact : May cause skin, eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

- Explosives, Water reactive substances, Oxidizing, Self-reactive substances, Organic peroxides: Not applicable (no relevance to molecular structure)
- Refer to "5) Acute and delayed symptoms/effects" of "4.First aid measures"

Symptoms related to the physical, chemical and toxicological characteristics;

- Acute toxicity:
 - oral: Not available
 - dermal: Not available
 - Inhalation: Not available
- Skin Corrosion/ Irritation: Not available
- Serious Eye Damage/ Irritation: Not available
- Respiratory sensitizer: Not available
- Skin Sensitization: Not available
- Carcinogenicity: Not available
 - IARC, ACGIH, NTP, OSHA, EC Directive 1272/2008, US EPA: not listed
- Mutagenicity: Not available
- Reproductive toxicity: Not available
- Specific target organ toxicity (single exposure): Not available
- Specific target organ toxicity (repeat exposure): Not available
- Aspiration Hazard: Not available

12. Ecological information

Aquatic Ecotoxicity

- Acute toxicity: Not available
- Chronic toxicity: Not available

Persistence degradability:

- Persistence: Not available
- Degradability: Polymers are not readily degradable.

**Bioaccumulative potential:**

- Bioaccumulative potential: Polymers are not biodegradable, a potential for bioaccumulation has to be expected.

Mobility in soil: Not available

13. Disposal considerations**1) Disposal method:**

- When prescribed in the Waste Control Act, in accordance with the regulations, please discard the contents and the containers.
- Please incinerate waste synthetic polymer compounds (other synthetic resins).

2) Disposal precaution:

- All the generated waste shall be disposed in accordance with the specific standard and method prescribed in the Act so that the environmental pollution may be minimized in the course of collecting, carrying, keep and disposing the waste.
- The waste shall be disposed in the waste disposal facility.
- The pollutants shall be disposed below the allowable exhaust standard.
- Without just reason, the waste shall not be discarded in a place other than the designated places.
- The regulations under the Waste Control Act shall be observed.

14. Transport information

UN Number: Not applicable

UN Proper shipping name: Not applicable

Transport Hazard class: Not applicable

Packing group: Not applicable

Marine pollutant: Not applicable

Special precautions

- in case of fire: Not applicable
- in case of leakage: Not applicable

15. Regulatory information**Korea:**

- Occupational Safety and Health Regulation : Not regulated
- Toxic Chemical Control Act : KE-00037
- Dangerous Material Safety Management Regulation :
It can be classified as special combustible materials when storage and handling (>3000kg). Therefore, It restricted to mark objects(name of goods, maximum quantites, strictly prohibited firearms), installation height and area, distance between products, fire protection facilities



-Wastes Control Act : Public Controlled Waste (other synthetic resins, 01-01-07)

EU classification:

- Classification: Not available
- Risk phrases: Not available
- Safety phrases: Not available
- EU REACH SVHC Free Certified(Candidate list Updated by ECHA on 30th March, 2010)

U.S.A management information

- **OSHA:** Not regulated
- **CERCLA:** Not regulated
- **EPCRA 302:** Not regulated
- **EPCRA 304:** Not regulated
- **EPCRA 313:** Not regulated
- **TSCA Section 8(b) Inventory :** XU
- **FDA - Direct Food Additives:** 21 CFR 175.300, 21 CFR 177.1200 (complying with section 177.1350)

EU management information

- European List of Notified Chemical Substances (ELINCS): EEC No. 429-840-1

Australia management information

- Inventory of Chemical Substances (AICS): Present

Japan management information

- Existing and New Chemical Substances (ENCS): (6)-6; (6)-82
- Prevention of Marine Pollution and Disaster - Noxious Liquid Substances: Present

China management information

- Inventory of Existing Chemical Substances (IECSC): Present

Canada management information

- Domestic Substances List (DSL): Present

New zealand management information

- Inventory of Chemicals (NZIoC): May be used as a single component chemical under an appropriate group standard.

Philippines management information

- Inventory of Chemicals and Chemical Substances (PICCS): Present

Substance of Roteradame Protocol: Not applicable

Substance of Stockholme Protocol: Not applicable

Substance of Montreal Protocol: Not applicable

16. Other information

Information source and references:

-ECB:ESIS (European chemical Substances Information System) (<http://ecb.jrc.it/esis>)





- International Uniform Chemical Information Database (IUCLID) (<http://ecb.jrc.it/esis>)
- Screening Information Data Set (SIDS)
- IARC. Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. Geneva: World Health Organization, International Agency for Research on Cancer, 1972-PRESENT (Multivolume work), p. S7 216 (1987)
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008
- Korea Occupational Health & Safety Agency: <http://www.kosha.net>
- U.S. National library of Medicine (NLM) Hazardous Substances Data Bank (HSDB): <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.htm>
- National Toxicology Program: http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm
http://www.safe.nite.go.jp/japan/sougou/data/pdf/hazard/hyokasyo/No-04_1.1.pdf
- ACGIH, TLVs and BELs, Publication # 0108, 2008
- Society for Occupational Health Recommendation of Occupational Exposure, 1993
- Waste Control Act enforcement regulation attached [1]
- National chemicals information systems (<http://ncis.nier.go.kr>)
- Korea dangerous material inventory management system (<http://hazmat.nema.go.kr>)

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