Hanwha Chemical

SAFETY DATA SHEET

Date Printed: Feb. 10, 2017
Version: 2
Regulation: According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

1. Identification

1.1 Product identifier

1.1.1 Product of name: CHYA-870F

1.1.2 Other means of identification: Not available

1.2 Recommended use of the chemical and restrictions on use

1.2.1 Recommended use: It is used for insulation of communication cable

1.2.2. Restrictions on use: Do not use for purposes other than those recommended.

1.3 Details of the supplier of the safety data sheet

1.3.1 Manufacturer

Company name: Hanwha Chemical Co, Ltd.
Address: Yeosu plant, Hanwha Chemical Co, Ltd., 117, Yeosusandan 3-ro, Yeosu-si, Jeollanam-do, Korea
Prepared by: W&C Sales Team
Contact Telephone: +82-61-688-1582, Fax: +82-61-688-1677, e-mail : h0500113@hanwha.com

1.3.2 Supplier & Distributor

Company name: Hanwha Chemical Co, Ltd.
Address: 18F, Hanwha Bldg., Cheonggyecheon-ro 86(Janggyo-dong), Jung-gu, Seoul, Korea
Prepared by: specialization Sales Team
Contact Telephone: +82-2-729-1172, Fax: +82-2-729-2563, e-mail : yuanfen@hanwha.com

1.4 Emergency phone number

Emergency phone: +82-2-729-1172

2. Hazard(s) identification

2.1 Classification of the substance or mixture

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Physical / Chemical Hazards: Not classified

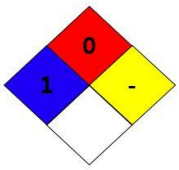
Health Hazards: Not classified

Environmental Hazards: Not classified

2.2 Label elements, including precautionary statements

- **Pictogram and symbol**: Not applicable
- **Signal word**: Not applicable
- **Hazard statements:** Not applicable
- **Precautionary statements:** Not applicable
- **Treatment statements:** Not applicable
- **Storage statements:** Not applicable
- **Waste statements:** Not applicable

2.3 Other hazard information not included in hazard classification (NFPA)



- **Health:** 1
- **Flammability:** 0
- **Reactivity:** -

3. Composition/information on ingredients

Component	Common name and synonyms	CAS No.	Conc. / %
Polyethylene	Ethylene polymer	9002-88-4	>98
Azodicarbonamide	Azodicarboxylic acid diamide	123-77-3	Trade Secret

4. First-aid measures

4.1 Description of first aid measures

Eye contact

- Get immediate medical advice/attention.
- In case of contact with substance, immediately flush eyes with running water at least 20 minutes.

Skin contact

- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin with running water at least 20 minutes.
- Get immediate medical advice/attention.

Inhalation

- Specific medical treatment is urgent.
- Move victim to fresh air.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.

Ingestion

- Do not let him/her eat anything, if unconscious.
- Get immediate medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

- Non known

4.3 Indication of immediate medical attention and notes for physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. Fire-fighting measures

5.1 Extinguishing media

- **Suitable extinguishing media:** Dry chemical powder, alcohol-resistant foam
- **Unsuitable extinguishing media**: Not available

5.2 Specific hazards arising from the chemical

- May be ignited by heat, sparks or flames.
- Containers may explode when heated.

- Some of these materials may burn, but none ignite readily.
- Fire may produce irritating and/or toxic gases.
- If inhaled, may be harmful.

5.3 Special protective equipment and precautions for fire fighters

- Move containers from fire area if you can do it without risk.
- Some may be transported melting.
- Runoff from fire control may cause pollution.
- Contact with substance may cause severe burns to skin and eyes.
- Dike fire-control water for later disposal; do not scatter the material.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Ventilate the area.
- Do not touch or walk through spilled material.
- Powder Spill; Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Prevent dust cloud.

6.2 Environmental precautions

- Prevent entry into waterways, sewers, basements or confined areas.

6.3 Methods and materials for containment and cleaning up

- Small Spill; Flush area with flooding quantities of water. And take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

7. Handling and storage

7.1 Precautions for safe handling

- Wash your hands thoroughly after handling.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

7.2 Conditions for safe storage, including any incompatibilities

- Store in a closed container.
- Store in cool and dry place.
- Please note that there are materials and conditions to avoid

8. Exposure controls/personal protection

8.1 Occupational Exposure limits

<Polyethylene>

- **ACGIH**: Not available
- **Biological exposure index**: Not available
- **OSHA**: Not available
- **NIOSH**: Not available
- **Biological exposure index:** Not available
- **EU regulation**:
  - Bulgaria: TWA=10mg/m^3 (dust)
  - The Czech Republic: TWA=5mg/m^3 (dust)
  - Latvia: TWA=5mg/m^3 (dust, listed under Polymers dust)

o **Other**:
- China: TWA=5mg/m^3 TWA (total dust)

<Azodicarbonamide>

o **ACGIH**: Not available
o **Biological exposure index**: Not available
o **OSHA**: Not available
o **NIOSH**: Not available
o **Biological exposure index:** Not available
o **EU regulation**:
- The United Kingdom: TWA=1.0mg/m^3
- Finland: TWA=0.5mg/m^3
- Ireland: TWA=1mg/m^3

o **Other**: Not available

8.2 Exposure controls

Appropriate engineering controls

- Provide local exhaust ventilation system or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Respiratory protection

- Wear NIOSH approved full or half face piece (with goggles) respiratory protective equipment when necessary.
- If risk of overexposure exists, wear an approved respirator.

Eye protection

- Wear enclosed safety goggles to protect from gaseous state organic material causing eye irritation or other disorder.
- An eyewash unit and safety shower station should be available nearby work place.

Hand protection

- Wear appropriate chemical resistant protective gloves by considering physical and chemical properties of chemicals.

Body protection

- Wear appropriate chemical resistant protective clothing by considering physical and chemical properties of chemicals.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Description:	Solid (20℃, 1,013hPa)
Color:	yellow
Odor :	odorless
Odor threshold :	Not available
pH :	Not available
Melting point/freezing point :	110~140℃
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	0.930 ~ 0.960
Solubility :	Not available
Partition coefficient: n-octanol/water :	Not available
Auto-ignition temperature :	Not available
Decomposition temperature	Not available
Viscosity :	Not available

"NOTE: The physical data presented above are typical values and should not be construed as a specification"

10. Stability and reactivity

10.1 Reactivity/Chemical stability/Possibility of hazardous reactions:

- Nonflammable, the material itself does not burn but it could generate irritating and toxic fume when heated.
- Fire may produce irritating, corrosive and/or toxic gases.

10.2 Conditions to avoid:

- Heat, sparks or flames, other sources of ignition

10.3 Incompatible materials:

- Combustibles, reducing agents.

10.4 Hazardous decomposition products:

- Irritating, corrosive or toxic gases

11. Toxicological information

Information on toxicological effects	
(a) Acute toxicity	
Oral	Not classified (ATE_{mix}>2,000mg/kg bw)
	- Polyethylene: Rat, LD_{50} > 2,000mg/kg bw - Azodicarbonamide: rat, LD_{50} > 2,500 mg/kg
Dermal	Not classified (ATE_{mix}>2,500mg/kg bw)
	- Azodicarbonamide: rabbit(F/M), LD_{50} > 2,000 mg/kg bw (OECD TG 402, GLP)
Inhalation	Not classified
	- Azodicarbonamide: rabbit(F/M), LD_{50} > 0.52 mg/L air/4h (OECD TG 403, GLP)
(b) Skin Corrosion/ Irritation	Not classified
	- Polyethylene: In test on skin irritation with rabbits, mild skin irritations was observed (irritating index: 0.2) - Azodicarbonamide:

	A single semi-occlusive application of Unifoam AZ SO-NL to intact rabbit skin for four hours elicited no dermal irritation. (GLP)
(c) Serious Eye Damage/ Irritation	Not classified
	- Polyethylene: At the 24 hour observation, one and two treated eyes suffered from moderate and minimal conjunctival irritation, respectively. , Polyethylene produced a maximum group mean score of 11.7 and was classified as a mild irritant to the rabbit eye, All treated eyes appeared normal at the 72 hour and 7 day observations. - Azodicarbonamide: None of the animals gave a "positive" response. No corneal damage or iridial inflammation were observed. Mild conjunctival irritation was observed in four of the animals, in one animal at the one hour reading only. The reactions in the other three animals had resolved two days after instillation of the test substance. The remaining two animals showed no response to treatment. (GLP).
(d) Respiratory sensitization	Not classified
	- Azodicarbonamide: Minimal irritation of the respiratory tract was shown in guinea pigs at concentrations up to 97 mg/m^3
(e) Skin Sensitization	Not classified
	- Polyethylene: In skin sensitization test with guinea pigs, skin sensitizations were not observed. - Azodicarbonamide: ADCA is not a skin sensitiser, it does not have to be classified and has no obligatory labelling requirement for sensitization by skin contact (OECD TG 406, GLP)
(f) Carcinogenicity	Not classified
	IARC, NTP, NIOSH, OSHA, ACGIH, EU CLP 1272/2008 : Not listed
(g) Mutagenicity	Not classified
	- Polyethylene *In vivo*: Bacterial Reverse Mutation Assay (*Salmonella typhimurium, Escherichia coli*) with/without metabolic activation: Negative - Azodicarbonamide *In vitro*: Mammalian Chromosome Aberration Test (Chinese hamster Ovary (CHO)) with metabolic activation: Positive, with/without metabolic activation: Negative (OECD TG 473, GLP) *In vitro*: Bacterial Reverse Mutation Assay (*S. typhimurium* TA100, TA1535,TA1537, TA1538, TA98) with/without metabolic activation: Positive/Negative (OECD TG 471, GLP) *In vivo*: Mammalian Bone Marrow Chromosome Aberration Test with rat, with/without metabolic activation : Negative (OECD TG 474, GLP)
(h) Reproductive toxicity	Not classified
	- Azodicarbonamide Under the present conditions, NOELs for reproductive toxicity of 1,1'azobisformamide are considered to be 1000 mg/kg/day for males and females, and those for toxicity other than reproduction are considered to be 1000 mg/kg/day for males and 300 mg/kg/day for females.(OECD TG 415, GLP)
(i) Specific target	Not classified

organ toxicity (single exposure)	- Azodicarbonamide Pilo-erection and abnormal body carriage (hunched posture) were observed in all rats within five minutes of dosing. Pilo-erection alone persisted throughout the remainder of Day 1. There were no other clinical signs and recovery, as judged by external appearance and behaviour, was complete by Day 2. (OECD TG 401, GLP)
(j) Specific target organ toxicity (repeat exposure)	Not classified
	- Polyethylene Subchronic or Prechronic Exposure/ In a 90-day study, liver changes (fat droplets, cloudy swelling, and increased liver weight) that were considered reversible in all cases. (NOAEC=Rat: 2,700, 540ppm, dog: 2700ppm) - Azodicarbonamide The rats of all groups appeared healthy and reacted normally throughout the study with the exception of geriatric changes in the rats during the fourth halfyear period of the study. In the rats there were no differences in survival related to dietary treatment. At one year about 85% or more of the F0 rats were alive in each group, including both sets of controls, and at 2 years, about half of the rats survived. (NOAEL=7.5ppm(ADCA), NOAEL=7,500ppm(Biurea))
(k) Aspiration Hazard	Not available

12. Ecological information

12.1 Toxicity	
Acute toxicity	Not classified (ATE_{mix}=11mg/L)
	- Azodicarbonamide Fish: 96h NOEC (*Pimephales promelas*) ≥ 50 mg/L (OECD TG 203, GLP) Crustacean: 48h EC_{50} (*Daphnia magna*) = 11 mg/L (OECD TG 202, GLP) Algae: 72h ErC_{50} (*Scenedesmus subspicatus*) > 36.1 mg/L (GLP)
Chronic toxicity	Not classified (Additivity formula)
	- Azodicarbonamide Fish: Not available Crustacean: 21d NOEC(*Daphnia magna*)=2.89 mg/L (OECD TG 211, GLP) Algae: 72h NOEC (*Scenedesmus subspicatus*) = 7.2 mg/L (GLP)
12.2 Persistence and degradability	- Polyethylene Persistence: High persistency (log Kow is more than 4 estimated.) (Log Kow = 17.04) (estimated) - Azodicarbonamide Persistence: Low persistency (log K_{ow} is less than 4 estimated.) (Log Kow <1) Degradability : Degradation in water, (25 °C, pH7) half-life is 43hr. (OECD TG 111, GLP)
12.3 Bioaccumulative potential	- Polyethylene Biodegradation: As not well-biodegraded, it is expected to have accumulation potential in living organisms (Polyethylene films is not degraded while 4 weeks to 25 weeks) - Azodicarbonamide Bioaccumulation: Bioaccumulation is expected to be low according to the BCF < 500 (BCF = 3.162) Biodegradation: As well-biodegraded, it is expected to have low accumulation potential in living organisms (70% biodegradation was observed after 28 days)(OECD TG 301B, GLP)
12.4 Mobility in soil	- Azodicarbonamide

	Low potency of mobility to soil. (Koc = 19.95) (OECD TG 121, GLP)
12.5 Hazardous to the ozone layer	Not classified
12.6 Other adverse effects	Not available

13. Disposal considerations

13.1 Disposal method

Waste must be disposed of in accordance with federal, state and local environmental control regulation.

13.2 Disposal precaution

Consider the required attentions in accordance with waste treatment management regulation.

14. Transport information

14.1 UN No.: Not applicable
14.2 UN Proper shipping name: Not applicable
14.3 Transport Hazard class:

ADR: Not applicable

IMDG: Not applicable

ICAO/IATA: Not applicable

RID: Not applicable

14.4 Packing group: Not applicable
14.5 Environmental hazards: Not applicable
14.6 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable
14.7 Special precautions for user: Not applicable

15. Regulatory information

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture

< Polyethylene>

USA Regulatory Information

TSCA (Toxic Substances Control Act): Section 8(b) inventory (Present) [XU]

Proposition 65: Not regulated

OSHA Regulation: Not regulated

CERCLA Regulation: Not regulated

SARA 311/312 Hazard classes: Not regulated

SARA 302 Regulation: Not regulated

SARA 304 Regulation: Not regulated

SARA 313 Regulation: Not regulated

Foreign Regulatory Information

Substance of Rotterdam Protocol: Not regulated

Substance of Stockholm Protocol: Not regulated

Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Existing Chemical Substance (KE-28877),
- European management information: European Inventory of Existing Commercial chemical Substances (EINECS): Not presented
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (05721)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((6)-1)
- Australia management information: Australian Inventory of Chemical Substances (AICS): Present
- Canada management information: Domestic Substances List (DSL): Present
- New Zealand management information: Inventory of Chemicals (NZIoC): May be used as a component in a product covered by a group standard but it is not approved for use as a chemical in its own right
- Philippines management information: Inventory of Chemicals and Chemical Substances (PICCS): Present

< Azodicarbonamide>

USA Regulatory Information

TSCA (Toxic Substances Control Act): Section8 (b) inventory (Present)
Proposition 65: Not regulated
OSHA Regulation: Not regulated
CERCLA Regulation: Not regulated
SARA 302 Regulation: Not regulated
SARA 304 Regulation: Not regulated
SARA 313 Regulation: Not regulated
SARA 311/312 Regulation: Not regulated

Foreign Regulatory Information

Substance of Roterdame Protocol: Not regulated
Substance of Stockholme Protocol: Not regulated
Substance of Montreal Protocol: Not regulated

Foreign Inventory Status

- Korea management information: Phase-in substance subject to registration (KE-09864)
- European management information: European Inventory of Existing Commercial chemical Substances (EINECS): Present (204-650-8)
- China management information: Inventory of Existing Chemical Substances (IECSC): Present (07373)
- Japan management information: Existing and New Chemical Substances (ENCS): Present ((2)-1747, (2)-1241)
- Canada management information: Domestic Substances List (DSL): Present
- Australia management information: Australian Inventory of Chemical Substances (AICS): Present
- New Zealand management information: Inventory of Chemicals (NZIoC): May be used as a component in a product covered by a group standard but it is not approved for use as a chemical in its own right
- Philippines management information: Inventory of Chemicals and Chemical Substances (PICCS): Present

16. Other information, including date of preparation or last revision

16.1 Indication of changes:

Preparation date: Jun. 20, 2016
Version: 2
Revision date: Feb. 10, 2017

16.2 Key literature reference and sources for data:

- o TSCA; http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/searchbylist/search.do
- o IECSC; http://cciss.cirs-group.com/
- o EU Regulation 1272/2008
- o TOMES-LOLI®; http://www.rightanswerknowledge.com/loginRA.asp
- o UN Recommendations on the transport of dangerous goods 17th
- o IARC Monographs on the Evaluation of Carcinogenic Risks to Humans;http://monographs.iarc.fr
- o ECHA CHEM; http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances
- o HSDB; http://toxnet.nlm.nih.gov/cgi-bin/sis/search2
- o EPISUITE Program ver.4.1
- o Waste Control Act enforcement regulation attached [1]
- o National chemicals information systems ; http://ncis.nier.go.kr

16.3 Abbreviations

ACGIH: American Conference of Governmental Industrial hygienists
NIOSH: The National Institute for Occupational Safety and Health
OSHA: Occupational Safety & Health Administration
IARC: International Agency for Research on Cancer
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Dangerous Goods
ICAO/IATA: International Civil Aviation Organization/ International Air Transport Association
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail

16.4 Other

- Product should be handled, stored, and used in accordance with the generally accepted industrial hygiene practices and in conformity with all the applicable legal regulations.
- The information provided herein is based on the knowledge possessed at this present time from the view point of safety requirements.
- It should, therefore, not be construed as guaranteeing specific properties.