



Safety Data Sheet

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Section 1: Product & Company Identification

- 1.1 Product Name:** AMYL FORMATE (ISO)
Chemical name: Isoamyl formate
Product Number: 9126
Brand: **Elan Inc.**
CAS Number: **110-45-2**
EC Number: **203-769-2**
FEMA Number: 2069
- 1.2 Recommended use of chemical:** Intermediate chemical used in flavor and food application
- 1.3 Supplier details:** Elan Inc.
268 Doremus Avenue
Newark, NJ 07105
U.S.A.
(973) 344-8014
jbissonette@elan-chemical.com
- 1.4 Emergency telephone:** (800) 424-9300 (Chemtrec)

Section 2: Hazard(s) Identification

- 2.1 Classification of the Substance or mixture:** GHS classification in accordance to 29 CFR 1910 (OSHA HCS)
- Physical Hazard(s): Flammable liquids: Category 3
- Health Hazard(s): Skin irritation: Category 2
Eye irritation: Category 2A
Specific target organ toxicity : Single exposure: Category 3 (respiratory system)
- Environmental Hazard(s): None

2.2 Label Elements:

Pictogram(s):



Signal word:

Warning

Hazard Statement(s):

Physical Hazard(s)

H226 Flammable liquid and vapour

Health hazard(s)

H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation

Environmental hazard(s)

N/A

N/A

Precautionary Statement(s):

Prevention:

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/ /equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash... thoroughly after handling.
P271 Use only outdoors or in well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P312 Call a POISON CENTER/doctor/.../if you feel unwell.
P321 Specific treatment (see ... on this label).
P362 Take off contaminated clothing.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P370+P378 In case of fire: Use ... to extinguish.

Storage:

P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/container to ... your waste control program

2.3 Other Hazards:

No additional information available

Section 3: Composition/Information on Ingredients

3.1 Substances:

Identity:	Isoamyl formate		
Synonyms:	Isopentyl formate		
CAS Number:	110-45-2		
EC Number:	203-769-2		
Purity:	92.0% min.		
Molecular Formula:	C6H12O2	Molecular Weight:	116.16 g/mol

3.2 Mixtures:

Not applicable

Section 4: First Aid Measures

4.1 Description of necessary measures:

Inhalation Exposure: If inhaled, move to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.

Skin Exposure: In case of contact, immediately wash skin with soap and copious amounts of water. Consult a physician.

Eye Exposure: In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes as a precaution.

Oral Exposure: If swallowed; do not induce vomiting. Wash out mouth with water provided person is conscious. Call a physician.

4.2 Most important symptoms/effects, acute and delayed: If you feel unwell, seek medical advice (show the label where possible)

4.3 Indication of immediate medical attention and special treatment, if necessary: If the person is unconscious immediately call 911. Never give anything by mouth to an unconscious person.

Section 5: Fire Fighting Measures

5.1 Extinguishing media:

Suitable:	For smaller fires use:	Foam Carbon Dioxide Dry Chemical Powder
	For Larger fires use:	From a distance use very large quantities of misted water (flooding).
Unsuitable:	Unknown	

5.2 Specific hazards arising from the chemical: Emits toxic fumes under fire conditions – carbon oxides.

5.3 Special protective equipment and precautions for fire-fighters: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

5.4 Further information: Use flooding water to cool unopened containers

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective equipment, and emergency procedures: Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of vapors, mist or gas. Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in lower areas.

6.2 Environmental precaution: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up: Contain spillage and ventilate.

Collect with a properly grounded dedicated wet vacuum and place in container for waste disposal (see company waste SOP)

Section 7: Handling and Storage Procedures

7.1 Precautions for safe handling: Do not breathe vapor. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. No smoking! Avoid any electrostatic charges. Porous material such as rags, paper, insulation, or organic clay may spontaneously combust when wetted with this material. May auto-oxidize with sufficient heat generation to ignite if spread (as a thin film) or absorbed on porous or fibrous material. All equipment used when handling the product must be grounded. Contaminated rags and cloths must be put in fireproof containers for disposal.

7.2 Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Keep away from heat and open flame. Store container(s) in a cool & dry place.

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters: Contains no substance with occupational limit values.

8.2 Appropriate Engineering Controls: Practice proper hygienic and work place safety procedures.

8.3 Individual protection measures (PPEs):

Eye Protection:	Chemical Safety goggles
Skin (Hand) Protection:	Chemical resistant gloves
Respiratory protection:	If exposure limits are exceeded or irritation is experienced, NIOSH approved respirator protection should be worn
Other Information:	Wash contaminated clothing before reuse Wash thoroughly after handling When using do not eat, drink or smoke

Section 9: Physical/Chemical Properties

Appearance:	Colorless to pale yellow liquid
Odor:	fruity, plum-like odor.
Odor Threshold:	N/A
pH:	13.72
Melting point/freezing point:	-93 °F
Initial Boiling Point and Boiling:	123-124 °C
Flash Point:	78.8 °F 26.0 °C
Evaporation Rate:	N/A
Flammability (solid, gas):	N/A
Upper.lower flammability or explosive limits:	1.9-11 %
Vapor pressure:	15 mmHg @20°C
Vapor Density:	4 (Air = 1)
Relative Density:	.8730-.8810 g/cm3
Refractive index:	1.396-1.400
Solubility (ies):	N/A
Partition coefficient: n-octanol/water:	N/A
Auto-ignition Temperature:	824 °F 440 °C
Decomposition Temperature:	N/A
Viscosity:	N/A

Section 10: Stability and Reactivity

10.1 Reactivity:	no data available
10.2 Chemical Stability:	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions:	Vapors may form explosive mixture with air.
10.4 Conditions to avoid:	Heat, flames and sparks. Extremes of temperature and direct sunlight.
10.5 Incompatible material(s):	Oxidizing agents.
10.6 Hazardous Decomposition Products:	no data available

Section 11: Toxicological Information

11.1 Information on the likely routes of exposure:

Inhalation:	May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.
Ingestion:	May be harmful if swallowed.
Skin Contact:	Causes skin irritation.
Skin Absorption:	May be harmful if absorbed through skin.
Eye Contact:	Causes eye irritation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics: Basic symptoms include, but are not exclusive, irritation, nausea, unconsciousness (consult specialist or Chemtrec).

11.3 Delayed and immediate effects and also chronic effects from short and long term exposure: Consult physician, specialist and/or Chemtrec.

11.4 Numerical measures of toxicity (acute estimates): To the best of our knowledge, the toxicological properties are the following:

Oral: rat LD50:	9,840 mg/kg
Oral: rabbit LD50:	3,020 mg/kg
Dermal: rabbit LD50:	>5,000 mg/kg
Inhalation:	no data available

Section 12: Ecological Information

12.1 <u>Ecotoxicity (aquatic and terrestrial):</u>	no data available
12.2 <u>Persistence and degradability:</u>	no data available
12.3 <u>Bioaccumulative potential:</u>	no data available
12.4 <u>Mobility in soil:</u>	no data available
12.5 <u>Other adverse effects:</u>	no data available

Section 13: Disposal Considerations

Disposal Instructions:	Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national and international regulations.
Local disposal regulations:	Dispose in accordance with all applicable regulations.
Hazardous waste code:	Not established.
Waste from residues/unused products:	Empty containers or liners may retain some product residues. This material and its products container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging:	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is empty.

Section 14: Transportation Information

DOT (US)

UN#:	1109
Proper Shipping Name:	Amyl Formates
Class:	3
Packing Group:	III

IMDG

UN#:	1109
Proper Shipping Name:	Amyl Formates
Class:	3
Packing Group:	III

IATA

UN#:	1109
Proper Shipping Name:	Amyl Formates
Class:	3
Packing Group:	III

Section 15: Regulatory Information

SARA 302 Components

Not subject to reporting requirements of SARA Title III, section 302.

SARA 313 Components

Not subject to reporting requirements of SARA Title III, section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right to Know Components

Amyl Formates CAS#: 110-45-2 Revision Date: 4-24-1993

Pennsylvania Right to Know Components

Amyl Formates CAS#: 110-45-2 Revision Date: 4-24-1993

New Jersey Right to Know Components

Amyl Formates CAS#: 110-45-2 Revision Date: 4-24-1993

TSCA On inventory list

California Prop. 65 Components

not listed

Section 16: Other Information

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Symbol(s):

Xi Irritant

R - phrase(s):

R: 10-36/38 Flammable. Irritating to eyes & respiratory system.

S - phrase(s):

S: 24 36/37/39 Avoid contact with skin. Keep away from sources of ignition-no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable PPE.

HMIS Rating

Health hazard: 1
Chronic Health hazard:
Flammability: 2
Physical hazard: 0

NFPA Rating

Health hazard: 1
Fire hazard: 2
Reactivity hazard: 0

FEMA GRAS™ (Generally Recognized As Safe) status for the use of a flavor ingredient in food only stipulates current regulatory acceptability for oral ingestion as a food item and does not provide regulatory authority and/or acceptability in the U.S for the use of the flavor ingredient in devices which cause the flavorant to be inhaled.

Elan, Inc. does not represent or suggest that this flavor ingredient is safe for use in E-cigarettes.

This safety data sheet is intended to meet the specific requirements of GHS and should be used accordingly. While the information has been obtained from sources believed to be accurate and reliable, no warranty, expressed or implied, can be made with regard to its completeness, correctness or accuracy. Any users or handlers of this product who are not under the direct control of Elan Inc. are responsible for evaluating this information in light of their particular situation and are responsible for all losses, damages or expenses that result while this material is under their control. It is also the responsibility of the users and handlers to observe any and all laws and regulations (Global, Federal, State and Local) concerning the transportation, use, handling, storage and disposal of this product.

1. Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Sixth revised edition, United Nations, 2015.
2. ISO 11014:2009 Safety data sheet for chemical products -- Content and order of sections.
3. American National Standard for Hazardous Industrial Chemicals-MSDS Preparation (ANSI Z400.1/Z129.1-2010)
4. U.S. DOL, OSHA, 29 CFR 1910.1200, HAZCOM.