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PIPERONAL

Sigma-Aldrich

Chemwatch: 32695-2
Version No: 4.1.1.1
Material Safety Data Sheet according to NOHSC and ADG requirements

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name:	PIPERONAL
Chemical Name:	piperonal
Synonyms:	1,3-Benzodiolole-5-carboxaldehyde, 1,3-Benzodioxole-5-carboxaldehyde, 1,3-benzodic benzaldehyde, 3,4-Benzodioxole-5-carboxaldehyde, 3,4-DIMETHYLENEDIOXYBENZA methylene ketal, 3,4-Methylene-dihydroxybenzaldehyde, 3,4-Methylenedioxybenzaldeh -dihydroxy benzaldehyde methylene, 3,4-dihydroxy benzaldehyde methylene ketal, 5-F 3,4-(methylenedioxy)-, Dioxymethylene-protocatechuic aldehyde, FEMA NUMBER 291 Heliotropin, Heliotropin aldehyde, Heliotropine, Methylenedioxy procatechuic aldehyde, aldehyde~Piperonal~Piperonyl aldehyde~Protocate, PIPERONAL, 99%, Piperonal, Pip aldehyde, Protocatechuic aldehyde methylene ether, alpha,alpha,alpha-Trifluoroacetop aldehyde, piperonylaldehyde
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Chemical formula:	C8H6O3
Other means of identification:	Not Available
CAS number:	120-57-0

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

Relevant identified uses:	Chemically related to safrol. A constituent of vanilla and cherry flavours. Pediculicide

Details of the supplier of the safety data sheet

Registered company name:	Sigma-Aldrich
Address:	12 Anella Avenue Castle Hill 2154 NSW Australia
Telephone:	+61 2 9841 0555
Fax:	+61 2 9841 0500
Website:	www.sigma-aldrich.com
Email:	ausmail@sial.com

Emergency telephone number

Association / Organisation:	Not Available
Emergency telephone numbers:	+44 8701906777
Other emergency telephone numbers:	1800 448 456

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

ChemWatch Hazard Ratings

		Min	Max
Flammability	1		
Toxicity	2		
Body Contact	2		
Reactivity	1		
Chronic	2		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule: None

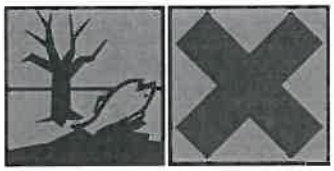
Risk Phrases[1]

R36/37/38	Irritating to eyes, respiratory system and skin.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R33	Danger of cumulative effects.

R68(3) Possible risk of irreversible effects.

Legend:1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label elements



Relevant risk statements are found in section 2.1

Indication(s) of danger: N, Xn

Safety advice:

S13	Keep away from food, drink and animal feeding stuffs.
S25	Avoid contact with eyes.
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
S29	Do not empty into drains.
S35	This material and its container must be disposed of in a safe way.
S36	Wear suitable protective clothing.
S37	Wear suitable gloves.
S39	Wear eye/face protection.
S40	To clean the floor and all objects contaminated by this material, use water and detergent.
S46	If swallowed, IMMEDIATELY contact Doctor or Poisons Information Center. (show this container or label).
S56	Dispose of this material and its container at hazardous or special waste collection point.
S57	Use appropriate container to avoid environmental contamination.
S61	Avoid release to the environment. Refer to special instructions/Safety data sheets.
S64	If swallowed, rinse mouth with water (only if the person is conscious).

Other hazards

Inhalation and/or ingestion may produce health damage*.

Limited evidence of a carcinogenic effect*.

May possibly be harmful to the foetus/ embryo*.

SECTION 3 Composition / information on ingredients

Substances

CAS No	%[weight]	Name
120-57-0	>98	PIPERONAL

Mixtures

See 'Information on ingredients' in section 3.1

SECTION 4 First aid measures

Description of first aid measures

Eye Contact:

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lift
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact:

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

Inhalation:

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid proce
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket ma
- Transport to hospital, or doctor, without delay.

Ingestion:

- If swallowed do **NOT** induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and pre
- Observe the patient carefully.

- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility:

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may r

Advice for firefighters

Fire Fighting:

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.

Fire/Explosion Hazard:

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (ci under which the combustion process occurs, such materials may cause fires and / or dust explosions.
- Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended i form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions).
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixtur flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; ac may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initi microns diameter will contribute to the propagation of an explosion.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Minor Spills:

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.

Major Spills:

Moderate hazard.

- CAUTION: Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

Other information

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

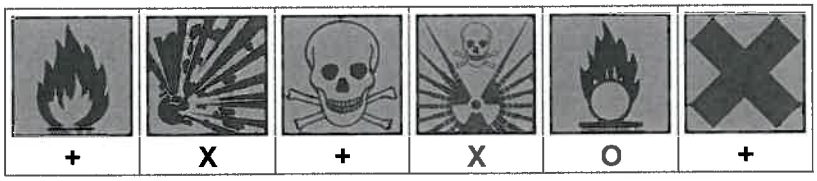
Suitable container:

- Polyethylene or polypropylene container.

- Check all containers are clearly labelled and free from leaks.

Storage incompatibility:

- Avoid strong bases.
- Protect from light.
- Avoid reaction with oxidising agents



X: Must not be stored together
0: May be stored together with specific preventions
+: May be stored together

Package Material Incompatibilities:

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits

Ingredient	TEEL-0	TEEL-1	TEEL-2
PIPERONAL	Not Available	Not Available	Not Availab

Ingredient	Original IDLH	Revised
PIPERONAL	Not Available	

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that s work environment.

Personal protection

Eye and face protection:

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy docume restrictions on use, should be created for each workplace or task.

Skin protection:

See Hand protection below

Hand protection:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality which vary from manuf is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be The exact break through time for substances has to be obtained from the manufacturer of the protective gloves andhas to be observe Suitability and durability of glove type is dependent on usage.

Body protection:

See Other protection below

Other protection:

- Overalls.
- P.V.C. apron.
- Barrier cream.

Thermal hazards:

Recommended material(s):	Respiratory protection:

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Colourless, lustrous crystalline solid with heliotrope odour; does not mix well with water (1:500). Soluble in ethanol, ether.

Physical state	Divided solid	**Relative density (Water = 1)**	
Odour	Not Available	**Partition coefficient n-octanol / water**	
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	
pH (as supplied)	Not Available	**Decomposition temperature**	
Melting point / freezing point (°C)	37	**Viscosity (cSt)**	
Initial boiling point and boiling range (°C)	263	**Molecular weight (g/mol)**	
Flash point (°C)	110	**Taste**	
Evaporation rate	Not Available	**Explosive properties**	
Flammability	Not Available	**Oxidising properties**	
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	
Vapour pressure (kPa)	Not Available	**Gas group**	
Solubility in water (g/L)	Immiscible	**pH as a solution(1%)**	
Vapour density (Air = 1)	Not Available		

SECTION 10 Stability and reactivity

Reactivity:

See section 7.2

Chemical stability:

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Possibility of hazardous reactions:

See section 7.2

Conditions to avoid:

See section 7.2

Incompatible materials:

See section 7.2

Hazardous decomposition products:

See section 5.3

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled:

The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
Inhalation of vapours, aerosols (mists, fumes) or dusts, generated by the material during the course of normal handling, may be dam
Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur furt
particulate are inhaled.

Ingestion:

Accidental ingestion of the material may be damaging to the health of the individual.
Piperonyls may cause watery eyes, irritability, weakness, bleeding in the gut and lungs, bloody discharge from eyes and nose, and d
pituitary glands. Large doses can cause ioss of appetite, nausea, cramps, vomiting and diarrhoea. Overdoses can cause increased a
coma, seizures and brain damage.

Skin Contact:

This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatit
Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health d
or abrasions.
Acute and repeated skin contact with piperonyls has been shown to be slightly irritating, but is not linked to long-term skin damage. H

Eye:

This material can cause eye irritation and damage in some persons.
Acute and repeated eye contact with piperonyls has been shown to be slightly irritating, but is not linked to long-term eye damage.

Chronic:

Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational ex
Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic probl
Strong evidence exists that this substance may cause irreversible mutations (though not lethal) even following a single exposure.
Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the po

TOXICITY	IRRITATION
piperonal	
Intraperitoneal (mouse) LD50: 480 mg/kg	Skin (human): 100%
Oral (rat) LD50: 2700 mg/kg	
Not Available	Not Available

* Value obtained from manufacturer's msds
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

PIPERONAL

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-aller dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the dia preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hou reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challeng inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS.

Acute Toxicity:	Not Available	**Carcinogenicity:**
Skin Irritation/Corrosion:	Skin Corrosion/Irritation Category 2	**Reproductivity:**
Serious Eye Damage/Irritation:	Not Available	**STOT - Single Exposure:**
Respiratory or Skin sensitisation:	Not Available	**STOT - Repeated Exposure:**
Mutagenicity:	Germ Cell Mutagen Category 2	**Aspiration Hazard:**

CMR STATUS

SECTION 12 Ecological information

Toxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contamir disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persisten
Not Available	Not Available	Not Availa

Bioaccumulative potential

Ingredient	Bioaccumulation
Not Available	Not Available

Mobility in soil

Ingredient	Mobility
Not Available	Not Available

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal:

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to st containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

SECTION 14 Transport information

Labels Required:

Marine Pollutant: NO
HAZCHEM: •3Z

Land transport (ADG)

UN number	3082	**Packing group**	III
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	**Environmental hazard**	No relevant data
Transport hazard class(es)	Class: 9 Subrisk:	**Special precautions for user**	Special provision Limited quantity

Air transport (ICAO-IATA / DGR)

UN number	3082	**Packing group**	III
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. *	**Environmental hazard**	No relevant data
Transport hazard class(es)	ICAO/IATA Class: 9 ICAO / IATA Subrisk: ERG Code: 9L	**Special precautions for user**	Special provision Cargo Only Pack Cargo Only Maxi Passenger and C Instructions: Passenger and C Pack: Passenger and C Packing Instructic Passenger and C Pack:

Sea transport (IMDG-Code / GGVSee)

UN number	3082	**Packing group**	III
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	**Environmental hazard**	No relevant data
Transport hazard class(es)	IMDG Class: 9 IMDG Subrisk:	**Special precautions for user**	EMS Number: Special provision Limited Quantitie

SECTION 15 Regulatory information

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

piperonal(120-57-0) is found on the following regulatory lists

"Australia Inventory of Chemical Substances (AICS)","FisherTransport Information","Sigma-AldrichTransport Information","Internatior Transparency List","IOFI Global Reference List of Chemically Defined Substances","Australia Customs (Prohibited Exports) Regulati of which is prohibited if specified conditions, restrictions or requirements are not complied with - Part 3","Australia - South Australia C Schedule BA - Certain substances declared as poisons - section 17B precursors","International Maritime Dangerous Goods Requirer Index","Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 · Association (IATA) Dangerous Goods Regulations","Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Code the Environment Operations (Waste) Regulation 2005 - Characteristics of trackable wastes","International Maritime Dangerous Good

Dangerous Goods Code (ADG Code) - Dangerous Goods List","IMO Provisional Categorization of Liquid Substances - List 3: (Trade weight of components already assessed by IMO, presenting safety hazards","IMO Provisional Categorization of Liquid Substances - least 99% by weight of components already assessed by IMO","GESAMP/EHS Composite List - GESAMP Hazard Profiles","Australia Customs (Prohibited Imports) Regulations 1956 - Schedule 4 - Drugs","Australia Illicit Drug Precursors/Reagents - Category I","United Narcotic Drugs and Psychotropic Substances - Table I","Australia - Victoria Drugs, Poisons and Controlled Substances (Precursor Ch Chemicals and Quantities","United Nations List of Precursors and Chemicals Frequently used in the Illicit Manufacture of Narcotic Dr International Control (Red List) - Table I"

SECTION 16 Other information

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and curr considered.