

Methyl 4'-amino[1,1'-biphenyl]-4-carboxylate Apollo Scientific

Part Number: **OR7488** Version No: **2.2** Safety Data Sheet Chemwatch Hazard Alert Code: 0

Issue Date: **11/07/2023** Print Date: **11/07/2023** S.GHS.GB-NIR.EN

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

Product Identifier

Product name	Methyl 4'-amino[1,1'-biphenyl]-4-carboxylate	
Chemical Name	Methyl 4"-aminobiphenyl-4-carboxylate	
Synonyms	Not Available	
Other means of identification	Not Available	
CAS number	5730-76-7*	

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

Relevant identified uses Not Av

Details of the manufacturer or supplier of the safety data sheet

Registered company name	Apollo Scientific	Apollo Scientific Itd	
Address	Whitefield Road, Bredbury SK62QR United Kingdom	Whitefield Road, Bredbury Cheshire SK6 2QR United Kingdom (NI)	
Telephone	01614060505	+44(0) 161 406 0505	
Fax	0161 406 0506 Not Available		
Website	Website http://www.apolloscientific.co.uk/ apolloscientific.co.uk		
Email	Email sales@apolloscientific.co.uk sales@apolloscientific.co.uk		

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	Not Available
Other emergency telephone numbers	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments ^[1]

Not Applicable

Label elements

Hazard pictogram(s)	Not Applicable
Signal word	Not Applicable

Hazard statement(s)

Not Applicable

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

SECTION 3 Composition / information on ingredients

Substances

CAS No		%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	SCL / M-Factor
Legend:	,	,		n drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C& g endocrine disrupting properties	L; * EU IOELVs

Mixtures

See section above for composition of Substances

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	 If this product comes in contact with eyes: Wash out immediately with water. If irritation continues, seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	 If skin or hair contact occurs: Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.
Inhalation	 If fumes, aerosols or combustion products are inhaled remove from contaminated area. Other measures are usually unnecessary.
Ingestion	 Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	 Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves in the event of a fire. Prevent, by any means available, spillage from entering drains or water courses. Use fire fighting procedures suitable for surrounding area. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	 Non combustible. Not considered a significant fire risk, however containers may burn.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	 Clean up all spills immediately. Avoid contact with skin and eyes. Wear impervious gloves and safety glasses. Use dry clean up procedures and avoid generating dust. Vacuum up (consider explosion-proof machines designed to be grounded during storage and use). Do NOT use air hoses for cleaning Place spilled material in clean, dry, sealable, labelled container.
Major Spills	 Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Control personal contact with the substance, by using protective equipment and dust respirator. Prevent spillage from entering drains, sewers or water courses. Avoid generating dust. Sweep, shovel up. Recover product wherever possible. Put residues in labelled plastic bags or other containers for disposal. If contamination of drains or waterways occurs, advise emergency services.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	 Limit all unnecessary personal contact. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Other information	 Store in original containers. Keep containers securely sealed. Store in a cool, dry area protected from environmental extremes. Store away from incompatible materials and foodstuff containers.

Protect containers against physical damage and check regularly for leaks.
 Observe manufacturer's storage and handling recommendations contained within this SDS.
 For major quantities:

 Consider storage in bunded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams).
 Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.

Conditions for safe storage, including any incompatibilities

Suitable container	 Lined metal can, lined metal pail/ can. Plastic pail. Polyliner drum. Packing as recommended by manufacturer. Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Avoid contamination of water, foodstuffs, feed or seed. None known

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2		TEEL-3
Methyl 4'-amino[1,1'- biphenyl]-4-carboxylate	Not Available	Not Available		Not Available
Ingredient	Original IDLH		Revised IDLH	
Methyl 4'-amino[1,1'- biphenyl]-4-carboxylate	Not Available		Not Available	

Exposure controls

Appropriate engineering controls	 Engineering controls are used to remove a hazard or place a barrier between the worker and the haz engineering controls can be highly effective in protecting workers and will typically be independent of 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 that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute a designed properly. The design of a ventilation system must match the particular process and chemicate Employers may need to use multiple types of controls to prevent employee overexposure. Local exhaust ventilation is required where solids are handled as powders or crystals; even when large, a certain proportion will be powdered by mutual friction. If in spite of local exhaust an adverse concentration of the substance in air could occur, respirator considered. Such protection might consist of: (a): particle dust respirators, if necessary, combined with an absorption cartridge; (b): filter respirators with absorption cartridge or canister of the right type; (c): fresh-air hoods or masks. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, dete velocities" of fresh circulating air required to effectively remove the contaminant. 	worker interactions to the worker and ventilation an air contaminant if al or contaminant in use. particulates are relatively y protection should be
	Type of Contaminant:	Air Speed:
	direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
	grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial	2.5-10 m/s (500-2000

	Lower and of the range	Upper and of the range	
	Lower end of the range 1: Room air currents minimal or favourable to capture	Upper end of the range 1: Disturbing room air currents	
	2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity	
	3: Intermittent, low production.	3: High production, heavy use	
	4: Large hood or large air mass in motion 4: Small hood-local control only		
Individual protection	generally decreases with the square of distance from the e extraction point should be adjusted, accordingly, after refer extraction fan, for example, should be a minimum of 4-10 m distant from the extraction point. Other mechanical consider	nce away from the opening of a simple extraction pipe. Velocity extraction point (in simple cases). Therefore the air speed at the rence to distance from the contaminating source. The air velocity at the n/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres erations, producing performance deficits within the extraction re multiplied by factors of 10 or more when extraction systems are	
measures, such as personal protective equipment			
Eye and face protection	document, describing the wearing of lenses or restriction include a review of lens absorption and adsorption for t Medical and first-aid personnel should be trained in the event of chemical exposure, begin eye irrigation immed	t lenses may absorb and concentrate irritants. A written policy ons on use, should be created for each workplace or task. This should the class of chemicals in use and an account of injury experience. For removal and suitable equipment should be readily available. In the diately and remove contact lens as soon as practicable. Lens should a lens should be removed in a clean environment only after workers	
Skin protection	See Hand protection below		
Hands/feet protection	 manufacturer to manufacturer. Where the chemical is a precan not be calculated in advance and has therefore to be of the exact break through time for substances has to be obtored when making a final choice. Personal hygiene is a key element of effective hand care. Of should be washed and dried thoroughly. Application of a not suitability and durability of glove type is dependent on usage frequency and duration of contact, chemical resistance of glove material, glove thickness and dexterity Select gloves tested to a relevant standard (e.g. Europe Effection of the prolonged or frequently repeated contact may occur greater than 240 minutes according to EN 374, AS/NZS 216 When only brief contact is expected, a glove with a protect according to EN 374, AS/NZS 2161.10.1 or national equivale. Some glove polymer types are less affected by movement long-term use. Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves and Excellent when breakthrough time > 20 min Fair when breakthrough time < 20 min Fair when breakthrough time < 20 min Poor when glove material degrades For general applications, gloves with a thickness typically glit should also be based on consideration of the task requirered for glove thickness may also vary depending on the glove material degrades For general applications, diven will be dependent on the should also be based on consideration of the task requirered gloves are only likely to give short duration protection and vertice of the gloves of the glove will be required where the should also be tase on consideration of the task requirered gloves are only likely to give short duration protection and vertice are only likely to give short duration protection and vertice are on the should also protes (down to 0.1 mm or less) may be required where the should also be based on consideration of the task required gloves are on	ained from the manufacturer of the protective gloves and has to be Gloves must only be worn on clean hands. After using gloves, hands on-perfumed moisturiser is recommended. ge. Important factors in the selection of gloves include: N 374, US F739, AS/NZS 2161.1 or national equivalent). ur, a glove with a protection class of 5 or higher (breakthrough time 61.10.1 or national equivalent) is recommended. ction class of 3 or higher (breakthrough time greater than 60 minutes alent) is recommended. it and this should be taken into account when considering gloves for e rated as: greater than 0.35 mm, are recommended. sarily a good predictor of glove resistance to a specific chemical, as the e exact composition of the glove material. Therefore, glove selection	

	Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.
Body protection	See Other protection below
Other protection	No special equipment needed when handling small quantities. OTHERWISE: • Overalls. • Barrier cream. • Eyewash unit.

Respiratory protection

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	-	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

· Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.

• The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).

Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.

Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.

- Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

· Use approved positive flow mask if significant quantities of dust becomes airborne.

 \cdot Try to avoid creating dust conditions.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Not Available		
Physical state	Solid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature (°C)	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available

Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Not Available	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	Product is considered stable and hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.		
Ingestion	The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.		
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.		
Eye	Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.		
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.		
Methyl 4'-amino[1,1'-	ΤΟΧΙΟΙΤΥ	IRRITATION	
biphenyl]-4-carboxylate	Not Available	Not Available	
Legend:	1. Value obtained from Europe ECHA Regis	tered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS.	

Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

Acute Toxicity	×	Carcinogenicity	×
Skin Irritation/Corrosion	×	Reproductivity	×
Serious Eye Damage/Irritation	×	STOT - Single Exposure	×
Respiratory or Skin sensitisation	×	STOT - Repeated Exposure	×
Mutagenicity	×	Aspiration Hazard	×

Legend: X – Data either not available or does not till the criteria for classification

Data available to make classification

SECTION 12 Ecological information

	Endpoint	Test Duration (hr)	Species	Value	Source
Methyl 4'-amino[1,1'- biphenyl]-4-carboxylate	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation	
	No Data available for all ingredients	

Mobility in soil

Ingredient	Mobility	
	No Data available for all ingredients	

SECTION 13 Disposal considerations

Waste treatment methods		
Product / Packaging disposal	 Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal. Bury residue in an authorised landfill. Recycle containers if possible, or dispose of in an authorised landfill. 	

SECTION 14 Transport information

Marine Pollutant NO

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group	
Transport in bulk in accordance with the IGC Code		

SECTION 15 Regulatory information

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

National Inventory Status

National Inventory	Status		
Australia - AIIC / Australia Non-Industrial Use	Not Available		
Canada - DSL	Not Available		
Canada - NDSL	Not Available		
China - IECSC	Not Available		
Europe - EINEC / ELINCS / NLP	Not Available		
Japan - ENCS	Not Available		
Korea - KECI	Not Available		
New Zealand - NZIoC	Not Available		
Philippines - PICCS	Not Available		
USA - TSCA	Not Available		
Taiwan - TCSI	Not Available		
Mexico - INSQ	Not Available		
Vietnam - NCI	Not Available		
Russia - FBEPH	Not Available		
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.		

SECTION 16 Other information

Revision Date	11/07/2023
Initial Date	11/07/2023

SDS Version Summary

Version	Date of Update	Sections Updated
1.2	11/07/2023	Toxicological information - Acute Health (inhaled), CAS Number, Toxicological information - Chronic Health, Hazards identification - Classification, Disposal considerations - Disposal, Composition / information on ingredients - Ingredients, Korean MSDS Number, Identification of the substance / mixture and of the company / undertaking - Supplier Information, Identification of the substance / mixture and of the company / undertaking - Synonyms

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

EN 374 Protective gloves against chemicals and micro-organisms

- EN 13832 Footwear protecting against chemicals
- EN 133 Respiratory protective devices

Definitions and abbreviations

PC - TWA: Permissible Concentration-Time Weighted Average

PC - STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit。

IDLH: Immediately Dangerous to Life or Health Concentrations

ES: Exposure Standard OSF: Odour Safety Factor NOAEL :No Observed Adverse Effect Level LOAEL: Lowest Observed Adverse Effect Level TLV: Threshold Limit Value LOD: Limit Of Detection OTV: Odour Threshold Value BCF: BioConcentration Factors **BEI: Biological Exposure Index** AIIC: Australian Inventory of Industrial Chemicals DSL: Domestic Substances List NDSL: Non-Domestic Substances List IECSC: Inventory of Existing Chemical Substance in China EINECS: European INventory of Existing Commercial chemical Substances ELINCS: European List of Notified Chemical Substances NLP: No-Longer Polymers ENCS: Existing and New Chemical Substances Inventory KECI: Korea Existing Chemicals Inventory NZIoC: New Zealand Inventory of Chemicals PICCS: Philippine Inventory of Chemicals and Chemical Substances TSCA: Toxic Substances Control Act TCSI: Taiwan Chemical Substance Inventory INSQ: Inventario Nacional de Sustancias Químicas NCI: National Chemical Inventory FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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