SAFETY DATA SHEET

M-Line 361A-20R Solder

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ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830 AS AMENDED BY UK REACH REGULATIONS SI 2019/758

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name	M-Line 361A-20R Solder
CAS No.	Mixture
Unique Formula Identifier (UFI)	HNQ0-X0W9-R00G-P199

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

Identified Use(s)	PC38 Welding and soldering products (with flux coatings or flux cores.), flux products. For professional users only.
Uses advised against	None Known

1.3 Details of the supplier of the safety data sheet

Company Identification	VISHAY MEASUREMENTS GROUP UK LTD Stroudley Road Basingstoke Hampshire RG24 8FW United Kingdom
Telephone	+44 (0) 1256 462131
Fax	+44 (0) 1256 471441
E-mail (competent person)	mm.uk@vpgsensors.com

1.4 Emergency telephone number

National Poisons Information Service (United Kingdom)	+44 (0) 3448 920111	24 hr. emergency phone number Healthcare Professionals ONLY
NHS 24	111	Members of Public
Emergency Phone No.	(00-1) 703-527-3887	CHEMTREC (24 hours)
Languages spoken	All official European languages.	

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Skin Sens. 1; H317
Repr. 1A; H360FD
Lact.; H362
STOT RE 1; H372

2.2 Label elements

According to the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Product name	M-Line 361A-20R Solder
Contains:	Lead (Massive form) and Rosin
Hazard Pictogram(s)	
Signal Word(s)	DANGER
Hazard Statement(s)	H317: May cause an allergic skin reaction. H360FD: May damage fertility. May damage the unborn child.

	H362: May cause harm to breast-fed children. H372: Causes damage to organs through prolonged or repeated exposure.
Precautionary Statement(s)	P201: Obtain special instructions before use. P260: Do not breathe fume. P263: Avoid contact during pregnancy and while nursing. P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. P302+P352: IF ON SKIN: Wash with plenty of water. P308+P313: IF exposed or concerned: Get medical advice/attention.
Supplemental information	None assigned

2.3 Other hazards — Not classified as PBT or vPvB. Does not cause endocrine disruption.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Classification: The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Chemical identity of the substance	%W/W	CAS No.	EC No.	UK-REACH Registration No.	Hazard classification
Lead Massive form	35 - 40	7439-92-1	231-100-4	Not yet assigned in the supply chain	Repr. 1A; H360FD Lact.; H362 STOT RE 1; H372
Rosin	1 - 5	8050-09-7	232-475-7	Not yet assigned in the supply chain	Skin Sens. 1; H317

For full text of H phrases see section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Self-protection of the first aider	No action should be taken involving personal risk. Wear appropriate personal protective equipment, avoid direct contact. Wear suitable respiratory protective equipment if exposure to high levels of material are likely. Avoid contact with skin. Do not breathe fumes. Remove contaminated clothing.
Inhalation	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Apply artificial respiration if breathing has ceased or shows signs of failing. IF exposed or concerned: Get medical advice/attention.
Skin contact	IF ON SKIN: Remove contaminated clothing and wash all affected areas with plenty of water. Contaminated clothing should be thoroughly cleaned. If skin irritation or rash occurs: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. Molten material can cause severe burns. Do NOT try to peel molten material from the skin. Cool rapidly with water.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if eye irritation develops or persists.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

4.2	**Most important symptoms and effects, both acute and delayed**	May cause an allergic skin reaction. May damage fertility. May damage the unborn child. May cause harm to breast-fed children. Causes damage to organs through prolonged or repeated exposure.
4.3	**Indication of any immediate medical attention and special treatment needed**	Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system. Smoke produced during soldering will contain rosin which is an allergen and can cause pulmonary irritation and damage. High atmospheric concentrations may lead to adverse effects on the central nervous system and anaesthetic effects, including drowsiness, giddiness, headache, nausea and unconsciousness. Lead is a cumulative poison and continuous exposure to small amounts over time can raise the body's content to toxic levels. Symptoms of lead poisoning include abdominal pain, nausea, vomiting and headache. May cause gastrointestinal tract irritation if s Molten material can cause severe burns. Treat symptomatically. If thought to be overexposed, the person should have a blood-lead analysis done. Patient should be kept under medical observation for at least 48 hours. When molten: In case of burns immediately cool affected skin as long as possible with cold water.

SECTION 5: FIREFIGHTING MEASURES

5.1	**Extinguishing media**	
	Suitable extinguishing media	As appropriate for surrounding fire.
	Unsuitable extinguishing media	Do not use water on fires when molten metal is present.
5.2	**Special hazards arising from the substance or mixture**	Flux in cored solder may ignite when the solder melts in a fire. When heated to soldering temperatures, the solvent in the flux will boil away and carry up droplets of rosin and thermal degradation products such as aliphatic aldehydes, acids and terpenes. No lead or antimony are detected in fumes from soldering below 537℃. Melted solder may liberate carbon monox ide, carbon dioxide, lead oxide fumes.
5.3	**Advice for firefighters**	Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Ensure adequate ventilation Use personal protective equipment as required. See Section: 8. Avoid all contact. Avoid breathing smoke fumes during soldering. Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.
6.2	**Environmental precautions**	Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
6.3	**Methods and material for containment and cleaning up**	Ensure suitable personal protection during removal of spillages. Allow product to cool/solidify and pick up as a solid. Transfer to a container for disposal. Recover or recycle if possible. Dispose of this material and its container as hazardous waste
6.4	**Reference to other sections**	Ensure adequate ventilation Use personal protective equipment as required. See Section: 8. Avoid all contact. Melted solder will solidify on cooling and can be scraped up.Avoid breathing smoke fumes during soldering. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces. See Section: 8, 13

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure adequate ventilation Avoid all contact.

Avoid breathing smoke fumes during soldering. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work.
When molten: Keep from any possible contact with water.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place.

Storage temperature	Ambient
Storage life	Stable under normal conditions
Incompatible materials	Store away from sources of sulfur. Keep away from: Strong Acids, Alkalis, Chlorine and Strong oxidising agents. Use of strong acid fluxes may result in liberation of toxic lead chloride fumes.

7.3 Specific end use(s)

See Section: 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Tin (inorganic compounds as Sn)	-	-	2	-	-	-
Rosin-based solder flux fume	8050-09-7	-	0.05	-	0.15	Sen
Lead and its compounds	7439-92-1	-	0.15	-	-	
Antimony and compounds except stibine (as Sb)	7440-36-0	-	0.5	-	-	-

Source: WEL: Workplace Exposure Limit (UK HSE EH40)

Notes:
Sen: Capable of causing occupational asthma.

8.1.2 Biological limit value

In accordance with SI 2002/2676: 2. (1) In these Regulations: “action level” means a blood-lead concentration of:
(a) in respect of a woman of reproductive capacity, 25 µg/dl;
(b) in respect of a young person, 40 µg/dl; or
(c) in respect of any other employee, 50 µg/dl
“suspension level” means - (a) a blood-lead concentration of –
(i) in respect of a woman of reproductive capacity, 30 µg/dl
(ii) in respect of a young person, 50 µg/dl, or
(iii) in respect of any other employee, 60 µg/dl; or
(b) a urinary lead concentration of –
(i) in respect of a woman of reproductive capacity, 25 µg Pb/g creatinine, or (ii) in respect of any other employee, 110 µg Pb/g creatinine;

8.1.3 PNECs and DNELs

Not established

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure adequate ventilation Or Use appropriate containment. Atmospheric levels should be controlled in compliance with the occupational exposure limit. Local exhaust recommended.

8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable. Avoid all contact. Avoid breathing smoke fumes during soldering. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces. Wash hands before breaks and after work. Keep work clothes separately. Contaminated clothing should be thoroughly cleaned. Do not eat, drink or smoke at the work place.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eye/ face protection

Wear eye protection with side protection (EN166).

Skin protection

Hand protection:
Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.
Hot/molten product: Use gloves with insulation for thermal protection, when needed.

Body protection:
Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Hot/molten product: Wear flameproof clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. A suitable mask with filter type A (EN141 or EN405) may be appropriate. Recommended: Dust mask/ Half-face mask (DIN EN 140), Filter type: P2

Thermal hazards

Hot/molten product: Wear appropriate personal protective equipment, avoid direct contact.

8.2.3 Environmental exposure controls

Avoid release to the environment. Do not allow to enter drains, sewers or watercourses.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	silver – grey solid (metal in wire form)
Odour	Not available
Odour threshold	Not available
pH	Not available
Melting point/freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	not applicable - solid
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Upper/lower flammability or explosive limits	not applicable – solid
Vapour pressure	Not available
Vapour density	not applicable - solid
Relative density	>1 (H_2O = 1)
Solubility(ies)	Insoluble in water
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available

	Decomposition temperature	Not available
	Viscosity	not applicable - solid
	Explosive properties	Not explosive.
	Oxidising properties	Not oxidising.
9.2	**Other information**	None Known

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions
10.2	**Chemical stability**	Stable under normal conditions Hazardous polymerisation will not occur.
10.3	**Possibility of hazardous reactions**	Flux in cored solder may ignite when the solder melts in a fire. Reacts vigorously with chlorine and oxidising agents. Use of strong acid fluxes may result in liberation of toxic lead chloride fumes.
10.4	**Conditions to avoid**	When molten: Keep from any possible contact with water.
10.5	**Incompatible materials**	Keep away from: Strong Acids, Alkalis, Chlorine and Strong oxidising agents. Store away from sources of sulfur.
10.6	**Hazardous decomposition products**	When heated to soldering temperatures, the solvent in the flux will boil away and carry up droplets of rosin and thermal degradation products such as aliphatic aldehydes, acids and terpenes. No lead or antimony are detected in fumes from soldering below 537℃. Melted solder may liberate carb on monoxide, carbon dioxide, lead oxide fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity - Ingestion		Mixture: Acute Tox. 4; H302: Harmful if swallowed. Acute Toxicity Estimate Mixture Calculation: estimated estimated LD50 >300 - ≤2000 mg/kg bw/day
Acute toxicity - Inhalation		Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: estimated LC50 > 5 mg/L. (dust/mist)
Acute toxicity - Skin contact		Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: estimated LD50 > 2000 mg/kg bw/day
Skin corrosion/irritation		Mixture: Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation		Mixture: Based upon the available data, the classification criteria are not met.
Respiratory or skin sensitisation		Mixture: Skin Sens. 1; H317: May cause an allergic skin reaction.
	Rosin	Skin Sens. 1: May cause an allergic skin reaction. Harmonised Classification Sensitisation (guinea pig) - Negative, ECHA Registration Endpoint summary
Germ cell mutagenicity		Mixture: Based upon the available data, the classification criteria are not met.
Carcinogenicity		Mixture: Based upon the available data, the classification criteria are not met.
Reproductive toxicity		Mixture: Repr. 1A: H360FD: May damage fertility. May damage the unborn child. Mixture: Lact. H362: May cause harm to breast-fed children.
	lead Massive form	Repr. 1A: H360FD: May damage fertility. May damage the unborn child. Specific concentration limit: C ≥ 0.03 %. Harmonised Classification Lact. H362: May cause harm to breast-fed children. Harmonised Classification ECHA Registration Endpoint summary: Adverse effects observed: oral intake and inhalation intake. NOAEL (Weight of evidence approach) µg/dL : 30.
STOT - single exposure		Mixture: Based upon the available data, the classification criteria are not met.:
STOT - repeated exposure		Mixture: STOT RE 1; H372: Causes damage to organs through prolonged or repeated exposure:
	lead Massive form	STOT RE 1; H372: Causes damage to organs through prolonged or repeated exposure: ECHA Registration Endpoint summary: Adverse effects observed central nervous system, Cardiovascular system/Blood circulatory system , urogenital
Aspiration hazard		Mixture: Based upon the available data, the classification criteria are not met.
11.2	**Other information**	None Known

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**		Based upon the available data, the classification criteria are not met. estimated Mixture LC50 >100 mg/L (Fish)
12.2	**Persistence and degradability**		No data for the mixture as a whole.
		lead (Massive form)	Not applicable for inorganic substances.
		Rosin	Readily biodegradable. ECHA Registration Endpoint summary
12.3	**Bioaccumulative potential**		No data for the mixture as a whole.
		lead (Massive form)	The substance has potential for bioaccumulation. Bioconcentration factor (BCF) freshwater: 1533L/kg wet weight
		Rosin	The product is predicted to have low potential for bioaccumulation Bioconcentration factor (BCF): Fish <25 - 130L/kg mussels 110 – 330 l/kg. Weight of evidence approach. ECHA registration dossier
12.4	**Mobility in soil**		No data for the mixture as a whole.
		lead (Massive form)	The substance is predicted to have low mobility in soil. Partition Coefficient: Log Kdsoil): 3.8 L/kg . Weight of evidence approach. ECHA Registration Endpoint summary
		Rosin	The substance is predicted to have low mobility in soil. Slightly soluble in: Water Log Koc: 0.88 – 5.37 l/kg. Read across / (Q)SAR. ECHA registration dossier
12.5	**Results of PBT and vPvB assessment**		Not classified as PBT or vPvB.
12.6	**Other adverse effects**		None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Solder can be reclaimed. This material and its container must be disposed of as hazardous waste. Dispose of wastes in an approved waste disposal facility. Disposal of electrical waste must be in accordance with the Waste Electrical and Electronic Equipment Directive (WEEE Directive, 2012/19/EU).
13.2	**Additional information**	Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

Not classified according to the United Nations 'Recommendations on the Transport of Dangerous Goods'.

		ADR/RID	IMDG	IATA/ICAO
14.1	**UN number**	Not classified	Not classified	Not classified
14.2	**UN proper shipping name**	Not classified	Not classified	Not classified
14.3	**Transport hazard class(es)**	Not classified	Not classified	Not classified
14.4	**Packing group**	Not classified	Not classified	Not classified
14.5	**Environmental hazards**	Not classified	Not classified as a Marine Pollutant.	Not classified
14.6	**Special precautions for user**	See Section: 2		
14.7	**Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable		

SECTION 15: REGULATORY INFORMATION

15.1	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	
15.1.1	**EU regulations**	Lead concentrations in electrical equipment are controlled by Directive 2002/95/EC (commonly referred to as the Restriction of Hazardous Substances Directive or RoHS) and recast Directive 2011/65/EU.
	Use restriction according to REACH annex XVII, no.:	Lead: REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles. Entry number: 63.

	Restrictions of occupation:	Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
	To follow:	Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work
	GB regulations	
	GB Mandatory classification and labelling list	**L**ead (Massive form): Listed Rosin: Listed
	SVHC Candidate List	**L**ead (Massive form): Listed
15.1.2	**National regulations**	
	Germany	
	Water hazard class (WGK)	Water hazard class: 1(Self classification)
15.2	**Chemical Safety Assessment**	A REACH chemical safety assessment has not been carried out.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Not applicable – V1.0

References:
Existing Safety Data Sheet (SDS).
Harmonised Classification(s) for and Existing ECHA registration(s) for lead (Massive form) (CAS No. 7439-92-1) and Rosin (CAS No. 8050-09-7).
GB Mandatory classification and labelling list: lead (Massive form) (CAS No. 7439-92-1) and Rosin (CAS No. 8050-09-7).

Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.
Compiled in accordance with REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Classification of the substance or mixture. The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain	**Classification procedure**
Skin Sens. 1; H317	Threshold Calculation
Repr. 1A; H360FD	Threshold Calculation
Lact.; H362	Threshold Calculation
STOT RE 1; H372	Threshold Calculation

Legend

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AND	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
BCF	Bioconcentration factor (BCF)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
EU	European Union
EC	European Community
ECHA	European Chemicals Agency
EN	European Standard
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
LC50	Lethal concentration at which 50% of the population is killed
LD50	Lethal dose at which 50% of the population is killed
LTEL	Long term exposure limit
NOAEC	No observed adverse effect concentration
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Cooperation and Development

PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TWA	Time Weighted Average
STEL	Short term exposure limit
vPvB	very Persistent and very Bioaccumulative
UK	United Kingdom
UN	United Nations

Hazard classification / Classification code:

Skin Sens. 1; Skin Sensitisation, Category 1
Repr. 1A; Reproductive toxicity , Category 1A
Lact.; Effects on or via lactation
STOT RE 1; Specific target organ toxicity — repeated exposure, Category 1

Hazard Statement(s)

H317: May cause an allergic skin reaction.
H360FD: May damage fertility. May damage the unborn child.
H362: May cause harm to breast-fed children.
H372: Causes damage to organs through prolonged or repeated exposure.

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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Annex to the extended Safety Data Sheet (eSDS) - Not applicable

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