

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) and Regulation (EU) No 2015/830



Developer AR 600-51

Revision date: 23/2/2016

Version: 6

Language: en-GB,IE

Date of print: 23/2/2016

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

1.1 Product identifier

Trade name: Developer AR 600-51

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

General use: Intermediate for electronic industry

1.3 Details of the supplier of the safety data sheet

Company name: Allresist
Gesellschaft für chemische Produkte zur Mikrostrukturierung mbH
Street/POB-No.: Am Biotop 14
Postal Code, city: 15344 Strausberg
Germany
WWW: www.allresist.de
E-mail: info@allresist.de
Telephone: +49 (0)33 41-35 93-0
Telefax: +49 (0)33 41-35 93-29
Dept. responsible for information:
Frau Feldt, Email: doerte.feldt@allresist.de

1.4 Emergency telephone number

Telephone: +49 (0)33 41-35 93-0
Only available during office hours.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Flam. Liq. 3; H226 Flammable liquid and vapour.
Acute Tox. 4; H302 Harmful if swallowed.
Acute Tox. 4; H312 Harmful in contact with skin.
Acute Tox. 4; H332 Harmful if inhaled.
Skin Corr. 1B; H314 Causes severe skin burns and eye damage.

2.2 Label elements

Labelling (CLP)



Signal word:

Danger

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Hazard statements:	H226	Flammable liquid and vapour.
	H302	Harmful if swallowed.
	H312	Harmful in contact with skin.
	H314	Causes severe skin burns and eye damage.
	H332	Harmful if inhaled.
Precautionary statements:	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P243	Take precautionary measures against static discharge.
	P260	Do not breathe vapours.
	P280	Wear protective gloves/protective clothing/eye protection/face protection.
	P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
	P303+P361+P353	IF ON SKIN (or hair): Remove/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.
	P310	Immediately call a POISON CENTER/doctor.
	P405	Store locked up.

Special labelling

Text for labelling: Contains Morpholine.

2.3 Other hazards

On contact with air, potentially explosive mixtures may develop.

SECTION 3: Composition / information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Chemical characterisation:

aqueous solution

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Hazardous ingredients:

Ingredient	Designation	Content	Classification
EC No. 203-961-6 CAS 112-34-5	2-(2-Butoxyethoxy)ethanol	50 - 75 %	CLP: Eye Irrit. 2; H319.
EC No. 203-815-1 CAS 110-91-8	Morpholine	10 - 25 %	Xn; R20/21/22. CLP: Flam. Liq. 3; H226. Acute Tox. 4; H302. Acute Tox. 4; H312. Acute Tox. 4; H332. Skin Corr. 1B; H314.
EC No. 205-483-3 CAS 141-43-5	Ethanolamine	1 - 10 %	CLP: Acute Tox. 4; H302. Acute Tox. 4; H312. Acute Tox. 4; H332. Skin Corr. 1B; H314.

SECTION 4: First aid measures

4.1 Description of first aid measures

- In case of inhalation: Move victim to fresh air. In case of irregular breathing or respiratory arrest provide artificial respiration. Immediately get medical attention.
- Following skin contact: Clean with plenty of water. If possible, also wash with polyethylene glycol 400. Take off immediately all contaminated clothing. Immediately get medical attention.
- After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Seek the attention of an ophthalmologist immediately.
- After swallowing: Rinse mouth immediately and drink plenty of water.
Do not induce vomiting. Risk of perforation!
Immediately get medical attention. Do not try to neutralize.

4.2 Most important symptoms and effects, both acute and delayed

Systemic effects:
Possible danger of damage to liver and kidneys.

In case of inhalation:
Mucous membrane irritation, cough, shortage of breath, damage of respiratory tract.
Risk of resorption. Pulmonary edema is possible.

In case of ingestion: Risk of resorption.
Risk of perforation in the oesophagus and stomach.

After contact with skin: Risk of resorption.

After eye contact: Causes serious eye damage. Danger of loss of sight!

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Foam, dry extinguishing powder, water fog, carbon dioxide.

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Extinguishing media which must not be used for safety reasons:

High power water jet

5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated: Nitrogen oxides (NO_x), carbon monoxide and carbon dioxide.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained breathing apparatus. Wear full protective gear.

Additional information: Hazchem-Code: 3W

Use fine water spray to cool endangered containers.

Contaminated fire-fighting water must be collected separately. Do not allow water used to extinguish fire to enter drains, ground or waterways. Treat runoff as hazardous.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Keep away from sources of ignition. - No smoking.

Avoid contact with the substance. Wear suitable protective clothing.

Do not breathe vapours. Provide adequate ventilation.

6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains.

In case of release, notify competent authorities.

6.3 Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Place in appropriate containers for disposal.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: Provide adequate ventilation. Execute works under fume hood.

Provide room air exhaust at ground level. Vapours are heavier than air.

Always close containers tightly after the removal of product.

Avoid contact with skin, eyes, and clothing.

Precautions against fire and explosion:

Keep away from sources of ignition. - No smoking.

On contact with air, potentially explosive mixtures may develop.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Store container tightly closed in a dry and cool place.

Do not allow the product to enter the ground.

Storage temperature: 10 °C up to 22 °C.

Hints on joint storage: Keep away from food, drink and animal feedingstuffs.

Storage class: 3 = Flammable liquids

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7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
112-34-5	2-(2-Butoxyethoxy) ethanol	Europe: IOELV: STEL	101.2 mg/m ³ ; 15 ppm
		Europe: IOELV: TWA	67.5 mg/m ³ ; 10 ppm
		Great Britain: WEL-STEL	101.2 mg/m ³ ; 15 ppm
		Great Britain: WEL-TWA	67.5 mg/m ³ ; 10 ppm
		Ireland: 15 minutes	101.2 mg/m ³ ; 15 ppm IOELV
		Ireland: 8 hours	67.5 mg/m ³ ; 10 ppm IOELV
110-91-8	Morpholine	Europe: IOELV: STEL	72 mg/m ³ ; 20 ppm
		Europe: IOELV: TWA	36 mg/m ³ ; 10 ppm
		Great Britain: WEL-STEL	72 mg/m ³ ; 20 ppm
		Great Britain: WEL-TWA	36 mg/m ³ ; 10 ppm
		Ireland: 15 minutes	72 mg/m ³ ; 20 ppm
		Ireland: 8 hours	36 mg/m ³ ; 10 ppm
141-43-5	Ethanolamine	Europe: IOELV: STEL	7.6 mg/m ³ ; 3 ppm
			(May be absorbed through the skin.)
		Europe: IOELV: TWA	2.5 mg/m ³ ; 1 ppm
			(May be absorbed through the skin.)
		Great Britain: WEL-STEL	7.6 mg/m ³ ; 3 ppm
		Great Britain: WEL-TWA	2.5 mg/m ³ ; 1 ppm
		Ireland: 15 minutes	7.6 mg/m ³ ; 3 ppm
		Ireland: 8 hours	2.5 mg/m ³ ; 1 ppm

8.2 Exposure controls

Withdraw by suction.

Personal protection equipment

Occupational exposure controls

- Respiratory protection: Respiratory protection must be worn whenever the WEL levels have been exceeded.
Use filter type A (= against vapours of organic substances) according to EN 14387.
- Hand protection: Protective gloves according to EN 374.
Glove material: butyl caoutchouc (butyl rubber) (0,7 mm).
Breakthrough time: > 480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.
- Eye protection: Tightly sealed goggles according to EN 166.
- Body protection: Wear suitable protective clothing.
In case of handling larger quantities: flame-retardant protective clothing, antistatic.
- General protection and hygiene measures:
Take off immediately all contaminated clothing.
Wash hands before breaks and after work.
When using do not eat, drink or smoke.
Have eye wash bottle or eye rinse ready at work place.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Form: liquid Colour: colourless
Odour:	characteristic
Odour threshold:	no data available
pH value:	alkaline
Melting point/freezing point:	no data available
Initial boiling point and boiling range:	approx. 130 °C (Morpholine)
Flash point/flash point range:	32 °C (Morpholine)
Evaporation rate:	no data available
Flammability:	no data available
Explosion limits:	LEL (Lower Explosion Limit): 0.70 Vol-% (2-(2-Butoxyethoxy)ethanol) UEL (Upper Explosive Limit): 24.60 Vol-% (2-(2-Butoxyethoxy)ethanol)
Vapour pressure:	at 20 °C: 10 hPa (Morpholine) at 60 °C: 62 hPa (Morpholine)
Vapour density:	no data available
Density:	at 20 °C: approx. 1 g/mL
Water solubility:	completely miscible
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	no data available
Viscosity, dynamic:	no data available
Explosive properties:	no data available
Oxidizing characteristics:	no data available

9.2 Other information

Ignition temperature: > 200 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

On contact with air, potentially explosive mixtures may develop.

10.2 Chemical stability

Product is stable under normal storage conditions.

10.3 Possibility of hazardous reactions

With nitrosic agents (such as nitric salts or nitric oxides) under special conditions may form nitrosamines.

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

strong oxidizing agents, strong acids, alkalis (bases, alkalis), metals

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10.6 Hazardous decomposition products

In case of fire may be liberated: Nitrogen oxides (NO_x), carbon monoxide and carbon dioxide.

Thermal decomposition: no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Toxicological effects: Acute toxicity (oral): Acute Tox. 4; H302 = Harmful if swallowed.
Acute toxicity (dermal): Acute Tox. 4; H312 = Harmful in contact with skin.
Acute toxicity (inhalative): Acute Tox. 4; H332 = Harmful if inhaled.
Skin corrosion/irritation, eye damage/irritation: Skin Corr. 1B; H314 = Causes severe skin burns and eye damage.
Sensitisation to the respiratory tract: Lack of data.
Skin sensitisation: Lack of data.
Germ cell mutagenicity/Genotoxicity: Lack of data.
Carcinogenicity: Lack of data.
Reproductive toxicity: Lack of data.
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Lack of data.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

In case of inhalation: Risk of resorption. Pulmonary edema is possible.

Other information: Information about Morpholine:
LD50 Rat, oral: 1050 mg/kg.
LD50 Rabbit, dermal: 500 mg/kg.
LC50 Rat, inhalative: 7,8 - 8,2 mg/L.
With nitrosic agents (such as nitric salts or nitric oxides) under special conditions may form nitrosamines. In animal experiments nitrosamines were carcinogenic.

Symptoms

Systemic effects:
Possible danger of damage to liver and kidneys.
In case of inhalation:
Mucous membrane irritation, cough, shortage of breath, damage of respiratory tract.
Risk of resorption. Pulmonary edema is possible.
In case of ingestion: Risk of resorption.
Risk of perforation in the oesophagus and stomach.
After contact with skin: Risk of resorption.
After eye contact: Causes serious eye damage. Danger of loss of sight!

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Forms corrosive mixtures with water even if diluted.

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12.2. Persistence and degradability

Further details: Information about 2-(2-Butoxyethoxy)ethanol:
Biodegradation: 58 %/28 d (OECD 301 C).
Information about Morpholine:
Biodegradation: 97 %/21 d (OECD 302 B).

12.3 Bioaccumulative potential

Bioconcentration factor (BCF):
no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

General information: Do not allow to enter into ground-water, surface water or drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 16 03 05* = organic wastes containing dangerous substances
* = Evidence for disposal must be provided.

Recommendation: Incinerate as hazardous waste according to applicable local, state, and federal regulations. Discharge into the environment must be avoided. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation.
Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

14.1 UN number

ADR/RID, IMDG, IATA: UN 2920

14.2 UN proper shipping name

ADR/RID, IMDG, IATA: UN 2920, CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Morpholine solution)

14.3 Transport hazard class(es)

ADR/RID: Class 8, Code: CF1
IMDG, IATA: Class 8, Subrisk 3

14.4 Packing group

ADR/RID, IMDG, IATA: II



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14.5 Environmental hazards

Marine pollutant: No

14.6 Special precautions for user

Land transport (ADR/RID)

Warning board: ADR/RID: Kemmler-number 83, UN number 2920
Hazard label: 8+3
Special provisions: 274
Limited quantities: 1 L
EQ: E2
Contaminated packaging - Instructions: P001 IBC02
Special provisions for packing together: MP15
Portable tanks - Instructions: T11
Portable tanks - Special provisions: TP2 TP27
Tank coding: L4BN
Tunnel restriction code: D/E

Sea transport (IMDG)

EmS: F-E, S-C
Special provisions: 274
Limited quantities: 1 L
EQ: E2
Contaminated packaging - Instructions: P001
Contaminated packaging - Provisions: -
IBC - Instructions: IBC02
IBC - Provisions: -
Tank instructions - IMO: -
Tank instructions - UN: T11
Tank instructions - Provisions: TP2, TP27
Stowage and handling: Category C. SW1 SW2
Properties and observations: Causes burns to skin, eyes and mucous membranes.

Air transport (IATA)

Hazard: Corrosive & Flammable liquid
EQ: E2
Passenger Ltd.Qty.: Pack.Instr. Y840 - Max. Net Qty/Pkg. 0.5 L
Passenger: Pack.Instr. 851 - Max. Net Qty/Pkg. 1 L
Cargo: Pack.Instr. 855 - Max. Net Qty/Pkg. 30 L
ERG: 8F

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

SECTION 15: Regulatory information

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

National regulations - Great Britain

Hazchem-Code: 3W

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National regulations - EC member states

Labelling of packaging with <= 125mL content



Signal word:

Danger

Hazard statements: H314

Causes severe skin burns and eye damage.

Precautionary statements:

P260

Do not breathe vapours.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+P361+P353

IF ON SKIN (or hair): Remove/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.

P310

Immediately call a POISON CENTER/doctor.

P405

Store locked up.

15.2 Chemical Safety Assessment

For this mixture a chemical safety assessment is not required.

SECTION 16: Other information

Further information

Wording of the H-phrases under paragraph 2 and 3:

H226 = Flammable liquid and vapour.

H302 = Harmful if swallowed.

H312 = Harmful in contact with skin.

H314 = Causes severe skin burns and eye damage.

H319 = Causes serious eye irritation.

H332 = Harmful if inhaled.

Reason of change: General revision (Regulation (EU) Nr. 2015/830)

Date of first version: 23/11/2010

Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.