

Material Safety Data Sheet

BAC Resolution Control Standard - tB, Part Number G3440-85044

1. Identification of the material and supplier

Names

Product name : BAC Resolution Control Standard - tB, Part Number G3440-85044
Part No. : G3440-85044
ADG : Not regulated as Dangerous Goods according to the ADG Code

Supplier

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
 679 Springvale Road
 Mulgrave
 Victoria 3170, Australia
 1800 802 402

Emergency telephone number : CHEMTREC®: (61)-290372994

Uses

Area of application : Industrial applications, Professional applications.
Material uses : Analytical chemistry.
 Part No. (Supplier): 36011
 ampoule 1 x 1 mL

2. Hazards identification

Classification : F; R11
 Carc. Cat. 3; R40
 T; R39/23/24/25
 Xn; R20/21/22
 Xi; R36/37

Risk phrases : R11- Highly flammable.
 R40- Limited evidence of a carcinogenic effect.
 R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
 R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
 R36/37- Irritating to eyes and respiratory system.

Safety phrases : S36/37- Wear suitable protective clothing and gloves.
 S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Statement of hazardous/dangerous nature : HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

Mixture : Yes.

Ingredient name	CAS number	%
Methanol	67-56-1	<10
2-Methylpropan-2-ol	75-65-0	<10
Acetone	67-64-1	<10
Propan-2-ol	67-63-0	<10
Acetaldehyde	75-07-0	<10
Ethanol	64-17-5	<10

Other ingredients, determined not to be hazardous according to Safe Work Australia criteria, and not dangerous according to the ADG Code, make up the product concentration to 100%.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First-aid measures

- Inhalation** : Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Get medical attention immediately. Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Advice to doctor** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Extinguishing media

- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Highly flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6 . Accidental release measures

Methods for cleaning up : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Exposure limits
Methanol	Safe Work Australia (Australia, 1/2014). Absorbed through skin.
	STEL: 328 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.
2-Methylpropan-2-ol	Safe Work Australia (Australia, 1/2014).
	STEL: 455 mg/m ³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 303 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
Acetone	Safe Work Australia (Australia, 1/2014).
	STEL: 2375 mg/m ³ 15 minutes. STEL: 1000 ppm 15 minutes. TWA: 1185 mg/m ³ 8 hours. TWA: 500 ppm 8 hours.
Propan-2-ol	Safe Work Australia (Australia, 1/2014).
	STEL: 1230 mg/m ³ 15 minutes. STEL: 500 ppm 15 minutes. TWA: 983 mg/m ³ 8 hours. TWA: 400 ppm 8 hours.
Acetaldehyde	Safe Work Australia (Australia, 1/2014).
	STEL: 91 mg/m ³ 15 minutes. STEL: 50 ppm 15 minutes. TWA: 36 mg/m ³ 8 hours. TWA: 20 ppm 8 hours.
Ethanol	Safe Work Australia (Australia, 1/2014).
	TWA: 1880 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours.

8 . Exposure controls/personal protection

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Exposure controls**
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

- Physical state** : Liquid.
- Colour** : Colourless.
- Odour** : Pungent. [Strong]
- Boiling point** : Not available.
- Melting point** : Not available.
- Vapour pressure** : Not available.
- Flash point** : Closed cup: -17°C (1.4°F)
- Flammable limits** : Lower: 4%
Upper: 57%
- Vapour density** : Not available.
- pH** : Not available.
- Auto-ignition temperature** : 130°C (266°F)
- Solubility** : Easily soluble in the following materials: cold water and hot water.

10 . Stability and reactivity

- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Materials to avoid** : oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Potential acute health effects

- Inhalation** : Harmful by inhalation. Danger of very serious irreversible effects. Can cause central nervous system (CNS) depression. Irritating to respiratory system.
- Ingestion** : Harmful if swallowed. Danger of very serious irreversible effects. Can cause central nervous system (CNS) depression.
- Skin contact** : Harmful in contact with skin. Danger of very serious irreversible effects. May cause skin dryness and irritation.
- Eye contact** : Irritating to eyes.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Methanol	LC50 Inhalation Vapour	Rat	145000 ppm	1 hours
	LC50 Inhalation Vapour	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
2-Methylpropan-2-ol	LC50 Inhalation Vapour	Rat	14100 ppm	4 hours
	LD50 Oral	Rat	2733 mg/kg	-
	LD50 Oral	Rat	5800 mg/kg	-
Acetone	LD50 Oral	Rat	12800 mg/kg	-
	LD50 Dermal	Rabbit	5000 mg/kg	-
Propan-2-ol	LD50 Oral	Rat	5000 mg/kg	-
	LD50 Oral	Rat	13300 ppm	4 hours
Acetaldehyde	LC50 Inhalation Vapour	Rat	13300 ppm	4 hours
	LD50 Dermal	Rabbit	3540 mg/kg	-
	LD50 Oral	Rat	661 mg/kg	-
Ethanol	LC50 Inhalation Vapour	Rat	124700 mg/m ³	4 hours
	LD50 Oral	Rat	7 g/kg	-
	LD50 Oral	Rat	7 g/kg	-

Conclusion/Summary : Not available.

Potential chronic health effects

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Methanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
2-Methylpropan-2-ol	Eyes - Severe irritant	Rabbit	-	24 hours 100 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters	-
Acetone	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	395 milligrams	-
Propan-2-ol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-

11 . Toxicological information

Acetaldehyde	Eyes - Moderate irritant	Rabbit	-	milligrams	
	Eyes - Severe irritant	Rabbit	-	10 milligrams	
Ethanol	Skin - Mild irritant	Rabbit	-	100 milligrams	
	Eyes - Severe irritant	Rabbit	-	500 milligrams	
	Skin - Mild irritant	Rabbit	-	40 milligrams	
	Eyes - Mild irritant	Rabbit	-	500 milligrams	
	Eyes - Moderate irritant	Rabbit	-	24 hours 500 milligrams	
	Eyes - Moderate irritant	Rabbit	-	0.06666667 minutes 100 milligrams	
	Eyes - Moderate irritant	Rabbit	-	100 microliters	
	Skin - Mild irritant	Rabbit	-	400 milligrams	
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Product name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
Acetaldehyde	Carc. Cat. 3; R40	-	-	-

Chronic effects : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/ or dermatitis.

Carcinogenicity : May cause cancer, based on animal data. Limited evidence of a carcinogenic effect. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
 nausea or vomiting
 respiratory tract irritation
 coughing
 headache
 drowsiness/fatigue
 dizziness/vertigo
 unconsciousness

Ingestion : No specific data.

Skin : Adverse symptoms may include the following:
 irritation
 dryness
 cracking

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- Eyes** : Adverse symptoms may include the following:
irritation
watering
redness
- Target organs** : Contains material which may cause damage to the following organs: blood, kidneys, lungs, the reproductive system, liver, spleen, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea, optic nerve.

12 . Ecological information

- Ecotoxicity** : This product shows a low bioaccumulation potential. This material is harmful to aquatic life.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Methanol	Acute EC50 24500000 µg/l Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
2-Methylpropan-2-ol	Acute LC50 290 mg/l Fresh water	Fish - Danio rerio - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 5504000 to 6577000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 6410000 to 6700000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Acetone	Acute EC50 20.565 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 10000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 5600 ppm Fresh water	Fish - Poecilia reticulata	96 hours
	Chronic NOEC 4.95 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.016 ml/L Fresh water	Crustaceans - Daphniidae	21 days
	Chronic NOEC 0.1 ml/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
Propan-2-ol	Chronic NOEC 5 µg/l Marine water	Fish - Gasterosteus aculeatus - Larvae	42 days
	Acute LC50 1400000 to 1950000 µg/l Marine water	Crustaceans - Crangon crangon	48 hours
Acetaldehyde	Acute LC50 4200 mg/l Fresh water	Fish - Rasbora heteromorpha	96 hours
	Acute EC50 236600 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 48250 to 59100 µg/l Fresh water	Daphnia - Daphnia magna - Larvae	48 hours
	Acute LC50 >100000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
Ethanol	Acute LC50 36800 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 ul/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks

Other ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
Acetone	OECD 301B Ready Biodegradability - CO2 Evolution Test	95 % - Readily - 28 days	-	-

12 . Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Methanol	-	-	Readily
Acetone	-	-	Readily
Ethanol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
BAC Resolution Control Standard - tB, Part Number G3440-85044	-0.3	-	low
Methanol	-0.77	<10	low
2-Methylpropan-2-ol	0.35	5.01	low
Acetone	-0.23	3	low
Propan-2-ol	0.05	-	low
Acetaldehyde	0.45	-	low
Ethanol	-0.35	-	low

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14 . Transport information

Regulatory information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

Additional information : **Remarks**
De minimis quantities

15 . Regulatory information

Standard Uniform Schedule of Medicine and Poisons

Not regulated.

Control of Scheduled Carcinogenic Substances

Ingredient name	Schedule
Methanol	Prohibited [For spray painting if the substance contains more than 1% by volume]

Australia inventory (AICS) : All components are listed or exempted.

16 . Other information

Date of issue : 23/06/2015

Date of previous issue : No previous validation.

✔ Indicates information that has changed from previously issued version.

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