



SAFETY DATA SHEET

[Required under safety and health regulations for shipping and handling]

Version: 2019

Date Updated: July 04, 2019

SECTION 1. ----- PRODUCT AND COMPANY IDENTIFICATION-----

Product Name Acryl/Bis (19: 1) Premix powder
Product Code(s) A0003
Recommended Use For Laboratory Research Use Only
Not for Human or Animal Drug Use

Supplier Bio Basic Inc.
Address 20 Konrad Crescent, Markham, Ontario,
Canada, L3R 8T4
Telephone (905) 474 4493
Fax (905) 474 5794
For Chemical Emergency Phone# (416) 995 9730

SECTION 2. ----- HAZARDS IDENTIFICATION -----

GHS Classification

Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Dermal (Category 4)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Skin sensitisation (Category 1)
Germ cell mutagenicity (Category 1B)
Carcinogenicity (Category 1B)
Reproductive toxicity (Category 2)
Specific target organ toxicity - repeated exposure, Oral (Category 1),
Peripheral nervous system Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed.
H312 + H332 Harmful in contact with skin or if inhaled
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs (Peripheral nervous system) through prolonged or lenses, if repeated exposure if swallowed.
H402 Harmful to aquatic life.

Precautionary statement(s)

P201 Obtain special instructions before use.
P280 Wear protective gloves/ protective clothing.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact present and easy to do. Continue rinsing.

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

SECTION 3. - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

Chemical Name	EC No.	CAS-No	Weight %
Acrylamide	201-173-7	79-06-1	95
N,N'-Methylenediacrylamide	203-750-9	110-26-9	5

SECTION 4. - - - - - FIRST-AID MEASURES - - - - -

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)

Explosion data - sensitivity to mechanical impact

No data available

Explosion data - sensitivity to static discharge

No data available

SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES - - - - -

Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7. ----- HANDLING AND STORAGE-----

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Light sensitive.

SECTION 8. ----- EXPOSURE CONTROLS/PERSONAL PROTECTION-----

Components with workplace control parameters

Components	CAS-No.	Value	Control	Basis
Acrylamide	79-06-1	TWA	0.03m g/m3	Canada. Alberta, Occupational Health and SafetyCode (table 2: OEL)
Remarks	Substance may be readily absorbed through intact skin			
		TWAE V	0.03 ppm	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	A substance to which exposure must be reduced to a minimum in accordance with section 42 Skin (percutaneous) Carcinogenic effect suspected in humans			
		TWAE V	0.0300 ppm	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	A substance to which exposure must be reduced to a minimum in accordance with section 42 Skin (percutaneous) Carcinogenic effect suspected in humans			
		TWA	0.03m g/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption			
		TWA	0.03m	Canada. British

point/freezing point	
Boiling point	No data available
Flash point	No data available
Ignition temperature	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	No data available
Density	No data available
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Relative vapour density	No data available
Odour	No data available
Odour Threshold	No data available
Evaporation rate	No data available

SECTION 10. -----STABILITY AND REACTIVITY -----

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

No data available

Materials to avoid

Acids, Bases, Oxidizing agents, Reducing agents, Copper, Brass, Aluminum, Iron and iron salts., Free radical initiators

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx) Other decomposition products - No data available

SECTION 11. ----- TOXICOLOGICAL INFORMATION -----

Acute toxicity

Oral LD50

No data available

LD50 Oral - Rat - 177 mg/kg (Acrylamide)

Inhalation LC50

No data available

LC50 Inhalation - Rat - 4 h - > 1,500 mg/m³(Acrylamide)

Dermal LD50

No data available

LD50 Dermal - Rabbit - 1,141 mg/kg (Acrylamide)

Other information on acute toxicity

No data available (Acrylamide)

Skin corrosion/irritation

Skin - Rabbit - No skin irritation - OECD Test Guideline 404 (Acrylamide)

Serious eye damage/eye irritation

Eyes - Rabbit - Irritating to eyes. - OECD Test Guideline 405 (Acrylamide)

Respiratory or skin sensitisation

Maximisation Test (GPMT) - Guinea pig - OECD Test Guideline 406 - May cause allergic skin reaction. (Acrylamide)

Germ cell mutagenicity

May alter genetic material. In vivo tests showed mutagenic effects (Acrylamide)

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Possible human carcinogen (Acrylamide)

IARC: 2A - Group 2A: Probably carcinogenic to humans (Acrylamide)

Reproductive toxicity

May cause reproductive disorders. Suspected human reproductive toxicant (Acrylamide)

Teratogenicity

Animal testing did not show any effects on foetal development. (Acrylamide)

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available (Acrylamide)

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

Oral - Causes damage to organs through prolonged or repeated exposure. - Peripheral nervous system

Aspiration hazard

No data available (Acrylamide)

Potential health effects

Inhalation	Toxic if inhaled. Causes respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

Acrylamide toxicity is manifested as a sensorimotor peripheral neuropathy., Drowsiness, Loss of balance, Confusion.

Synergistic effects

No data available

Additional Information

RTECS: Not available

SECTION 12. ----- ECOLOGICAL INFORMATION -----

Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 90 mg/l - 96 h (Acrylamide) NOEC - Cyprinus carpio (Carp) - 5 mg/l - 28 d (Acrylamide)
Toxicity to daphnia and other aquatic	mortality NOEC - Daphnia magna (Water flea) - 60 mg/l - 48 h (Acrylamide)

invertebrates

EC50 - Daphnia magna (Water flea) - 160 mg/l - 48 h (Acrylamide)

Persistence and degradability

Biodegradability Result: 100 % - Readily biodegradable
Method: OECD Test Guideline 301D

Bioaccumulative potential

Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 72 h (Acrylamide)
Bioconcentration factor (BCF): 1.65

Mobility in soil

No data available (Acrylamide)

PBT and vPvB assessment

No data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

No data available

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

SECTION 14. ----- TRANSPORT INFORMATION -----

DOT (US)

UN number: 2074 Class: 6.1 Packing group: III
Proper shipping name: Acrylamide, solid
Reportable Quantity (RQ):
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN number: 2074 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: ACRYLAMIDE, SOLID
Marine pollutant: No

IATA

UN number: 2074 Class: 6.1 Packing group: III
Proper shipping name: Acrylamide, solid

SECTION 15. ----- REGULATORY INFORMATION -----

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

SECTION 16. ----- OTHER INFORMATION -----

Further information: no limited for paper copy, just for internal uses.
For research use only. Not intended for human or animal diagnostic or therapeutic uses.

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Issuing Date: 04-Jul-2019

End of SDS



CERTIFICATE OF ANALYSIS

Product	Acryl/ Bis™ (19:1) premixed powder
Grade	Ultra Pure Grade
Product Code	A0003
Lot	

Test Items	Specifications	Actual Results
Appearance	White Crystalline Powder	
Acrylamide (w/v)	38.0 %	
Bisacrylamide (w/v)	2.0 %	
Conductivity (40% @ 18°C)	≤ 5 μmho	

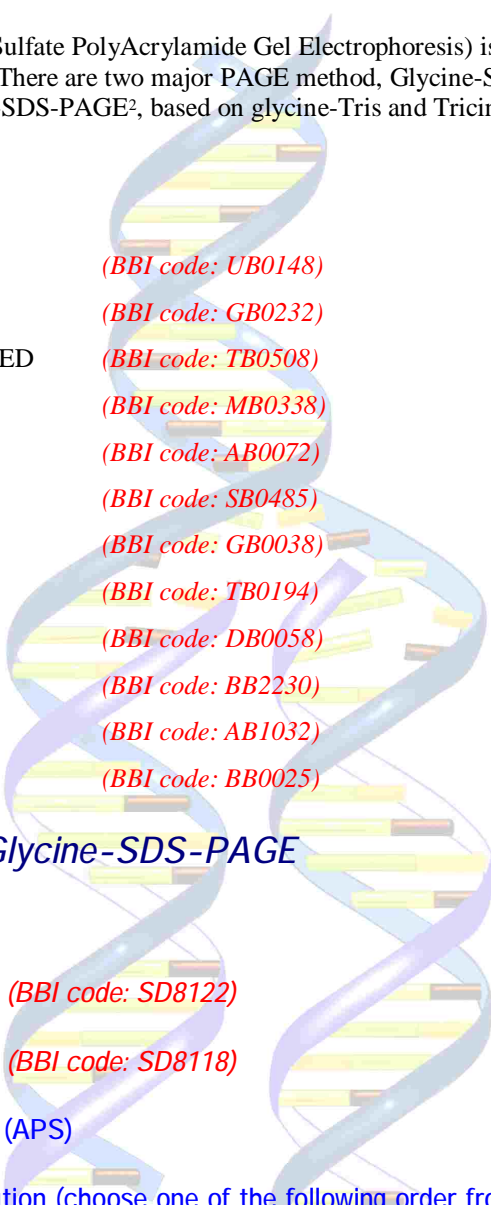
Storage: Room temperature.

SDS-PAGE Protocol

Introduction

SDS-PAGE (Sodium Dodecyl Sulfate PolyAcrylamide Gel Electrophoresis) is commonly used electrophoretic techniques for separating proteins. There are two major PAGE method, Glycine-SDS-PAGE¹ (also know as Laemmli-SDS-PAGE) and Tricine-SDS-PAGE², based on glycine-Tris and Tricine-Tris buffer systems, respectively.

Materials



Urea	(BBI code: UB0148)
Glycerol	(BBI code: GB0232)
Tetramethylethylenediamine, TEMED	(BBI code: TB0508)
Mercaptoethanol	(BBI code: MB0338)
Ammonium persulfate, APS	(BBI code: AB0072)
Sodium Dodecyl Sulfate, SDS	(BBI code: SB0485)
Coomassie blue G-250	(BBI code: GB0038)
Tris base	(BBI code: TB0194)
Dithiothreitol, DTT	(BBI code: DB0058)
Bromophenol blue	(BBI code: BB2230)
Acrylamide	(BBI code: AB1032)
Bis-acrylamide	(BBI code: BB0025)

Buffer Preparation for Glycine-SDS-PAGE

1.5 M Tris-HCl, pH 8.8

0.5 M Tris-HCl, pH 6.8 (BBI code: SD8122)

10% (w/v) SDS (BBI code: SD8118)

10% (w/v) ammonium persulfate (APS)

Acrylamide/Bis-acrylamide Solution (choose one of the following order from BBI)

Acry/Bis Solution (19:1), 30% (w/v) (BBI code: A0009)

Acry/Bis Solution (29:1), 30% (w/v) (BBI code: A0010)

Acry/Bis Solution (37.5:1), 30% (w/v) (BBI code: A0011)



5x Sample Buffer

Tris-HCl, pH 6.8	0.2 M
SDS	10% (w/v)
Dithiothreitol	10 mM
Glycerol	20% (w/v)
Bromophenolblue	0.05%

(Optional: add urea up to 8M for really hydrophobic proteins)

5x SDS Running Buffer

Tris base	15 g/L
Glycine	72 g/L
SDS	5 g/L

Coomassie Blue Stain

Acetic acid	10% (v/v)
Coomassie Blue Dye	0.006 (w/v)
ddH ₂ O	90%

Guideline for Gel Strength

% Gel	M.W. Range
6-8	50 kDa - 500 kDa
10	20 kDa - 300 kDa
12	10 kDa - 200 kDa
15	3 kDa - 100 kDa

Separating gel Preparation for Glycine-SDS-PAGE

Componets	Volume of componets for different volumes of gels (ml)							
	5	10	15	20	25	30	40	50
6% Gel								
ddH ₂ O	2.6	5.3	7.9	10.6	13.2	15.9	21.2	26.5
30% Acryl/Bis Solution	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0
1.5 M Tris pH 8.8	1.3	2.5	3.8	5.0	6.3	7.5	10.0	12.5
10% SDS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
10% APS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
TEMED	0.004	0.008	0.012	0.016	0.02	0.024	0.032	0.04
8% Gel								
ddH ₂ O	2.3	4.6	6.9	9.3	11.5	13.9	18.5	23.2
30% Acryl/Bis Solution	1.3	2.7	4.0	5.3	6.7	8.0	10.7	13.3
1.5 M Tris pH 8.8	1.3	2.5	3.8	5.0	6.3	7.5	10.0	12.5



10% SDS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
10% APS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
TEMED	0.003	0.006	0.009	0.012	0.015	0.018	0.024	0.03
10% Gel								
ddH ₂ O	1.9	4.0	5.9	7.9	9.9	11.9	15.9	19.8
30% Acryl/Bis Solution	1.7	3.3	5.0	6.7	8.3	10.0	13.3	16.7
1.5 M Tris pH 8.8	1.3	2.5	3.8	5.0	6.3	7.5	10.0	12.5
10% SDS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
10% APS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
TEMED	0.002	0.004	0.006	0.008	0.01	0.012	0.016	0.02
12% Gel								
ddH ₂ O	1.6	3.3	4.9	6.6	8.2	9.9	13.2	16.5
30% Acryl/Bis Solution	2.0	4.0	6.0	8.0	10.0	12.0	16.0	20.0
1.5 M Tris pH 8.8	1.3	2.5	3.8	5.0	6.3	7.5	10.0	12.5
10% SDS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
10% APS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
TEMED	0.002	0.004	0.006	0.008	0.01	0.012	0.016	0.02
15% Gel								
ddH ₂ O	1.1	2.3	3.4	4.6	5.7	6.9	9.2	11.5
30% Acryl/Bis Solution	2.5	5.0	7.5	10.0	12.5	15.0	20.0	25.0
1.5 M Tris pH 8.8	1.3	2.5	3.8	5.0	6.3	7.5	10.0	12.5
10% SDS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
10% APS	0.05	0.1	0.15	0.2	0.25	0.3	0.4	0.5
TEMED	0.002	0.004	0.006	0.008	0.01	0.012	0.016	0.02

Stacking gel Preparation for Glycine-SDS-PAGE

Componets	Volume of componets for different volumes of gels (ml)							
	1	2	3	4	5	6	8	10
5% Gel								
ddH ₂ O	0.68	1.4	2.1	2.7	3.4	4.1	5.5	6.8
30% Acryl/Bis Solution	0.17	0.33	0.5	0.67	0.83	1.0	1.3	1.7
1.0 M Tris pH 6.8	0.13	0.25	0.38	0.5	0.63	0.75	1.0	1.25
10% SDS	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.1
10% APS	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.1
TEMED	0.001	0.002	0.003	0.004	0.005	0.006	0.008	0.01

Buffer Preparation for Tricine-SDS-PAGE

Gel Buffer

Tris-HCl, pH 8.45

3 M

SDS

0.3% (w/v)

Acrylamide/Bis-acrylamide Solution (choose one of the following order from BBI)

Acry/Bis Solution (19:1), 40% (w/v)

(BBI code: A0006)

Acry/Bis Solution (29:1), 40% (w/v)

(BBI code: A0007)



Acry/Bis Solution (37.5:1), 40% (w/v) *(BBI code: A0008)*

70% Glycerol

10% Ammonium Persulfate, APS

10x Cathode Buffer

Tris	1M
Tricine	1M
SDS	1%

Adjust pH to 8.25

10x Anode Buffer

Tris	2.1M	Adjust pH to 8.9
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5x Sample Buffer

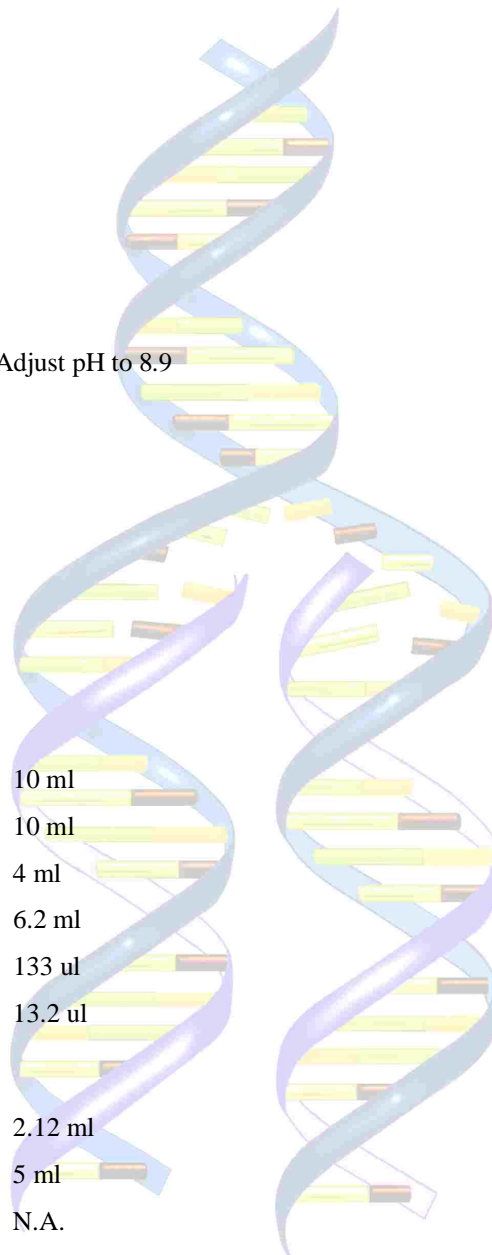
Glycerol	5 ml
SDS	1 g
Mercaptoethanol	2.56 ml
0.5 M Tris-HCl, pH6.8	2.13 ml
Bromophenol Blue	traces

Separating gel

40% Acrylamide Solution	10 ml
Gel Bufer	10 ml
70% Glycerol	4 ml
H2O	6.2 ml
10% APC	133 ul
TEMED	13.2 ul

Stacking gel

40% Acrylamide Solution	2.12 ml
Gel Bufer	5 ml
70% Glycerol	N.A.
H2O	13.44 ml
10% APC	160 ul
TEMED	16 ul





Reference

1. Laemmli, U. K. Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* **227**, 680–685 (1970).
2. Schagger, H. Tricine-SDS-PAGE. *Nat. Protocols* **1**, 16–22 (2006).

