

Expedeon Ltd.,  
Unit 1A, Button End,  
Harston,  
Cambridgeshire,  
CB22 7GX  
United Kingdom

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## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT IDENTIFICATION

Trade Name: RunBlue<sup>®</sup> DNA/Native-PAGE Cassette Gel, all percentages and well configurations

Manufacturer/Supplier:

Expedeon Ltd, Button End Unit 1a, Harston, Cambridgeshire, CB22 7GX, United Kingdom

Information department: Technical Services, customer support. Telephone number: +44 1223 873364

### 2. COMPOSITION / INFORMATION OF COMPONENTS

Mixture of the following substances with non-hazardous additions:

Chemical Name	%	CAS #	EINECS #
Polyacrylamide	3 to 20%	9003-05-8	Not available
Triethanolamine-acetate	1 to 5%	14806-72-5	Not available
Acrylamide	<0.05%	79-06-1	201-173-7
N,N'-methylene bisacrylamide	<0.005%	110-26-9	203-750-9

### 3. HAZARDS IDENTIFICATION

#### Potential Health Effects:

WARNING!

IRRITANT - IRRITATING TO THE SKIN, EYES, AND UPPER RESPIRATORY TRACT.

HARMFUL IF SWALLOWED. CONTAINS COMPOUND THAT MAY CAUSE ALLERGIC REACTION IN CERTAIN INDIVIDUALS.

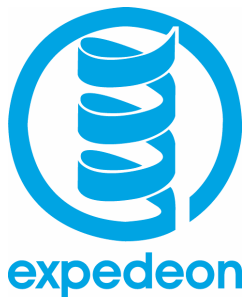
CONTAINS COMPOUND THAT IS A KNOWN NEUROTOXIN.

CONTAINS COMPOUNDS THAT ARE SUSPECTED CARCINOGENS.

CONTAINS COMPOUNDS THAT ARE SUSPECTED MUTAGENS.

#### Eye:

Can cause minor irritation, tearing and reddening.



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Skin:

This material may cause skin irritation. Reddening, itching and inflammation may result. Not likely to cause acute or permanent damage.

Inhalation:

May cause irritation to the respiratory tract. This material may cause injury or illness if inhaled.

Ingestion:

If ingested, this material may be irritating to mouth, throat and gastrointestinal tract. May be harmful if swallowed.

Special Toxic Effects:

Contains a substance that is a possible cancer hazard based on high dose animal studies and/or human study. Contains a substance(s) that is a possible reproductive system hazard based on high dose tests with laboratory animals. (See Section 11).

Repeated exposure to low levels of ACRYLAMIDE dust has resulted in neurotoxicity in humans. The primary route of occupational exposure is skin absorption, but inhalation and ingestion can contribute significantly to the overall exposure. The appearance of symptoms may be delayed up to 2 months, with low-level exposures. Symptoms may include: tiredness, weakness in hands and feet, tremor, dizziness, muscular incoordination (ataxia), sleepiness, poor memory, confusion, slurred speech, abnormal behavior, vision changes, urinary system changes, and weight loss. Recovery from these toxic effects is usually good, but may take months to years, depending on the severity and duration of exposure.

**CAUTION! THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN FULLY INVESTIGATED.**

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#### **4. FIRST AID MEASURES**

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Eye:

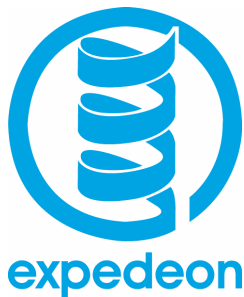
Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin:

Wash with soap and water under a drench shower. Remove contaminated clothing, launder immediately and discard contaminated leather goods. Get medical attention immediately.

Inhalation:

Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately.



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Ingestion:

If swallowed, wash out mouth with water provided person is conscious.  
Never give anything by mouth to an unconscious person. Get medical attention.

Note to Physician:

Treat symptomatically.

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**5. FIRE FIGHTING MEASURES**

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Flashpoint	ND
Lower Flammable Limit %	ND
Upper Flammable Limit %	ND
Autoignition Temperature	ND

Extinguishing Media:

Use extinguisher media appropriate for surrounding fire.

Firefighting Techniques / Equipment: As in any fire, wear self-contained breathing apparatus pressure-demand (MHSA/NIOSH approved or equivalent) and full protective gear. Evacuate the area and fight fire from a safe distance.

Hazardous Combustion Products:

MAY EMIT TOXIC FUMES UNDER FIRE CONDITIONS.

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**6. ACCIDENTAL RELEASE MEASURES**

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Accidental releases may be subject to special reporting requirements and other regulatory mandates. Refer to section 8 for personal protection equipment recommendations.

Spill Cleanup:

Exposure to the spilled material may be irritating. Follow personal protective equipment recommendations found in Section 8 of this MSDS.

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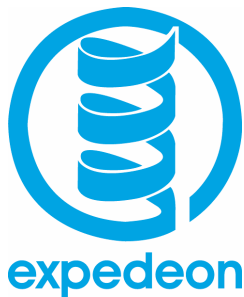
**7. HANDLING AND STORAGE**

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Storage pressure: Ambient.

Handling Procedures:

DO NOT GET IN EYES, ON SKIN OR CLOTHING. Wash hands thoroughly before eating, drinking or smoking.



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Storage Procedures:

Store in a cool location. Isolate from incompatible materials and conditions. Keep container(s) closed. The material is suitable for most general chemical storage areas, including refrigerators, but not to be stored with food.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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**Exposure Limits:**

Component	OSHA PEL (ppm)	AGCIH TWA (ppm)
Acrylamide	0.03 MG/ M3	0.03 MG/ M3 Skin

**Engineering Controls:**

No special exhaust ventilation, process enclosures, or other engineering controls are necessary when handling or using this product to avoid overexposure.

**Personal Protective Equipment:**

Eye:

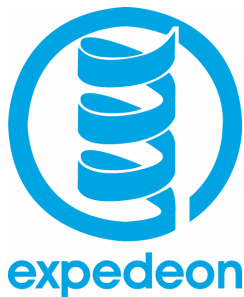
An eye wash station must be available where this product is used. Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.

Skin:

Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking and when leaving work. Have a safety shower available.

Respiratory:

No special equipment is required.



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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance/physical state:	Liquid solution / gel
Odour:	no odour
Boiling point ( °C):	ND
Melting Point ( °C):	ND
Solubility in water:	ND
pH:	7.6 to 8.8
Vapor Pressure:	ND
Vapor Density:	ND
Specific Gravity/Density:	ND
Octanol/water Partition Coeff:	ND
Volatiles:	ND
Evaporation Rate:	ND
Viscosity:	ND

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## 10. STABILITY AND REACTIVITY

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Stability/Incompatibility:

Stable under normal conditions of use. Incompatible with oxidizing agents, acids, acid chlorides and acid anhydrides.

Hazardous Decomposition Products:

Nitrogen oxides, Carbon dioxide. Carbon monoxide.

Hazardous Polymerization: Will not occur.

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## 11. TOXICOLOGICAL INFORMATION

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**FOR PURE ACRYLAMIDE:**

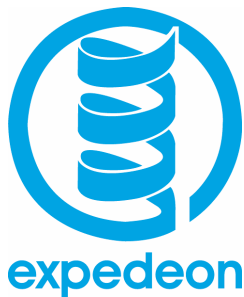
Irritation Data:

Standard Draize Test - Administration onto the Skin, Rabbit = 50 mg/3D, Mild.

Standard Draize Test - Administration onto the Skin, Rabbit = 500 mg/24H, Mild.

Rinsed with Water - Administration into the Eye, Rabbit = 10 mg/30S, Mild.

Standard Draize Test - Administration into the Eye, Rabbit = 100 mg/24H, Moderate.



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#### Tumorigenic Data:

Oral TDLo - rat = 1456 mg/kg/2Y-C (Toxic Effects: Tumorigenic - carcinogenic by RTECS criteria; Reproductive - tumorigenic Effects - testicular tumors).  
Intraperitoneal TDLo - mouse = 24 mg/kg/8W-I (Toxic Effects: Tumorigenic - neoplastic by RTECS criteria; Lungs/Thorax/Respiration - tumors).  
Oral TDLo - mouse = 300 mg/kg/2W-I (Toxic Effects: Tumorigenic - carcinogenic by RTECS criteria; Lungs/Thorax/Respiration - tumors; Skin and Appendages - tumors).

#### Reproductive Data:

Oral TDLo - rat = 200 mg/kg, female 7-16 days after conception (Toxic Effects: Reproductive - Effects on Newborn - biochemical and metabolic)  
Oral TDLo - rat = 560 mg/kg, female 6-21 days after conception, lactating female 10 days post-birth (Toxic Effects: Reproductive - Maternal Effects - parturition; Effects on Newborn - stillbirth, viability index).  
Oral TDLo - rat = 75 mg/kg, male 5 days pre-mating (Toxic Effects: Reproductive - Fertility - male fertility index).

#### Mutation Data:

Unscheduled DNA Synthesis - Human Mammary gland = 1 mmol/L.  
Micronucleus test - Intraperitoneal, rat = 100 mg/kg. Micronucleus Test - mouse fibroblast = 100 mg/L. Micronucleus test - Intraperitoneal, mouse = 30 mg/kg. Only selected toxicological data is presented here. See actual entry in RTECS for complete information.

Carcinogenicity ACGIH TLV - CONFIRMED ANIMAL CARCINOGEN - DTLVS\*  
TLV/BEI, 1999 IARC CANCER REVIEW: ANIMAL SUFFICIENT EVIDENCE -  
IMEMDT 39,41,1986 IARC CANCER REVIEW: ANIMAL SUFFICIENT EVIDENCE -  
IMEMDT 60, 389, 1994 IARC CANCER REVIEW: HUMAN NO ADEQUATE  
EVIDENCE - IMEMDT 39, 41,

1986 IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE - IMEMDT  
60, 389,

1994 IARC CANCER REVIEW: GROUP 2A - IMEMDT 60, 389, 1994 NTP 10th  
REPORT ON CARCINOGENS, 2000: REASONABLY ANTICIPATED TO BE  
HUMAN CARCINOGEN.

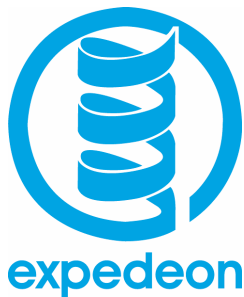
#### LD50

##### REGISTRY OF THE TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS)

RTECS # AS3325000 The oral LD50 in rats is = 124 mg/kg. Oral LD50 - mouse = 107 mg/kg. Oral LD50 - rabbit = 150 mg/kg. Oral LD50 - guinea pig = 150 mg/kg.

Administration onto the skin LD50 - rat = 400 mg/kg (Toxic Effects: Blood - other changes; Biochemical – Enzyme inhibition, induction or change in blood or tissue levels - transaminases, peptidases).

Administration onto the skin LD50 - rabbit = 1680 uL/kg (Toxic Effects: Behavioral - hallucinations, distorted perceptions).



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Routes of Exposure Inhalation, ingestion, skin and eye contact. Skin contact is the primary route of occupational exposure.

Only selected data is presented here. See actual entry in RTECS for complete information.

**OTHER TOXICOLOGICAL INFORMATION:** CAUTION! THE TOXICOLOGICAL PROPERTIES OF THIS MATERIAL HAVE NOT BEEN FULLY INVESTIGATED. FOLLOW GOOD LABORATORY PRACTICES WHEN HANDLING

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## **12. ECOLOGICAL INFORMATION**

Ecotoxicological Information: Acrylamide is readily leachable in soils. The hazard of leachability to ground water appears greater in sandy soils than in clay soils. In soils, the half-life ranges from 14 hours to 45 hours and is about 94.5 hours in water at 22C.

Environmental Fate (Degradation, Transformation, and Persistence) for Acrylamide:  
Biological Oxygen Demand BOD5 = 0.97 mg/L std. dil/acclimated.

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## **13. DISPOSAL CONSIDERATIONS**

### Waste Disposal

Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

If the material is determined to be a hazardous waste, the transportation, storage, treatment and disposal of this waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities.

Contact your local disposal service provider(s) for appropriate method(s) of disposal.

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## **14. TRANSPORT INFORMATION**

Proper Shipping Name: NOT REGULATED

Hazard Class: NA

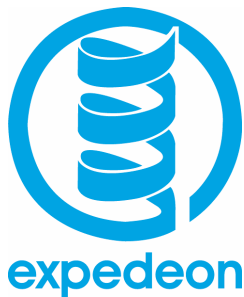
UN/NA Code: NA

Packaging Group: NA

Reportable Quantity: None

Labels Required: NA

Marine Pollutant (49 CFR 172.101 Appendix B): No



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## **15. REGULATORY INFORMATION**

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### **INTERNATIONAL REGULATIONS**

#### **Information For Pure Acrylamide**

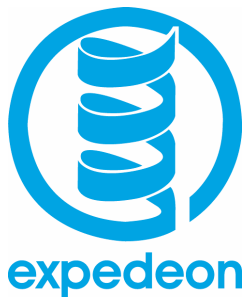
CANADA: Domestic Substances List / Non-Confidential.

Listed on chemical list(s) in the following countries: AUSTRALIA; CHINA; JAPAN;

KOREA; PHILLIPINES EUROPEAN Priority Lists: Rapporteur: United Kingdom; Priority List # 1; ECB # 011. OEL-AUSTRALIA: TWA 0.3 mg/m<sup>3</sup>, Skin, Carcinogen, JAN1993. OEL-AUSTRIA: Skin, Carcinogen, JAN1999. OEL-BELGIUM: TWA 0.3 mg/m<sup>3</sup>, Skin, Carcinogen, JAN1993. OEL-DENMARK: TWA 0.03 mg/m<sup>3</sup>, Skin, JAN1999. OEL-FINDLAND: TWA 0.3 mg/m<sup>3</sup>, STEL 0.9 mg/m<sup>3</sup>, JAN1993. OEL-FRANCE: VME 0.1 ppm (0.3 mg/m<sup>3</sup>), Skin, C2 Carcinogen, JAN1999. OEL-GERMANY: Skin, Carcinogen, JAN1999. OEL-HUNGARY: STEL 0.3 mg/m<sup>3</sup>, Skin, Carcinogen, JAN1993. OEL-JAPAN: OEL 0.3 mg/m<sup>3</sup>, Skin, 2A Carcinogen, JAN1999. OEL-THE NETHERLANDS: MAC-TGG 0.3 mg/m<sup>3</sup>, Carcinogen, JAN1999. OELNORWAY: TWA 0.3 mg/m<sup>3</sup>, JAN1999. OEL-THE PHILLIPINES: TWA 0.3 mg/m<sup>3</sup>, Skin, JAN1993. OEL-POLAND: TWA 0.1 mg/m<sup>3</sup>, JAN1999. OEL-RUSSIA: STEL 0.2 mg/m<sup>3</sup>, Skin, JAN1993. OEL-SWEDEN: NGV 0.03 mg/m<sup>3</sup>, KTV 0.1 mg/m<sup>3</sup>, Skin, JAN1999. OEL-SWITZERLAND: MAK-W 0.03 mg/m<sup>3</sup>, Skin, Carcinogen, JAN1999. OEL-UNITED KINGDOM: TWA 0.3 mg/m<sup>3</sup>, Skin, Carcinogen, SEP2000. OEL in ARGENTINA, BULGARIA, COLOMBIA, JORDAN, KOREA, NEW ZEALAND, SINGAPORE, VIETNAM check ACGIH TLV.

### **INTERNATIONAL PHRASES**

R - 45 May cause cancer.  
46 May cause heritable genetic damage.  
20/21 Harmful by inhalation and in contact with skin.  
25 Toxic if swallowed.  
36/38 Irritating to eyes and skin.  
43 May cause sensitization by skin contact.  
S - 23 Do not breathe gas/fumes/vapor/spray  
24/25 Avoid contact with skin and eyes.  
36/37/39 Wear suitable protective clothing, gloves & eye/face protection.  
EINECS Numbers: See page 1 of this document.



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### SARA TITLE III RATINGS for Pure Acrylamide

Immediate Hazard	Delayed Hazard	Fire Hazard	Pressure Hazard	Reactivity Hazard	SARA 313 Chemical
X	X	X		X	X

### NFPA RATINGS for Pure Components

Component	Health	Flammability	Reactivity	Special Hazards
Acrylamide	2	2	2	-
Sodium Dodecyl Sulfate	-	-	-	-

### HMIS Ratings for Pure Components

Component	Health	Flammability	Reactivity	Personal Protection Equipment
Acrylamide	3	1	1	K
Sodium Dodecyl Sulfate	2	0	0	I

### US FEDERAL REGULATIONS

All ingredients are listed on Inventory of Existing Chemical Substances under the Toxic Substances Control Act (TSCA).

#### Information For Pure Acrylamide

EPA TSCA Test Submission (TSCATS) Data Base, January 2001.

NOHS 1974: HZD 03540; TNF 442 (est); NIS 10; NOS 24; TNE 7047 (est).

NOES 1983: HZD 03540; TNF 453 (est); NIS 19; NOS 22; TNE 10651 (est); TFE 721 (est)

This compound is listed on the Inventory of Existing Chemical Substances under the Toxic Substances Control Act (TSCA). TSCA Sections: 8(b) - inventory; 8(a) - preliminary assessment information, final rule; 8(d) - unpublished health/safety studies.

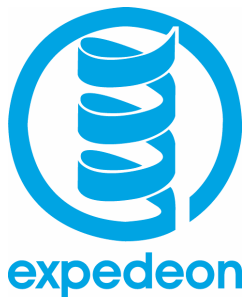
CLEAN AIR ACT: SOCM I chemical, HAP code: XO V.

RCRA code: U007. CERCLA RQ: 5,000 pounds.

SARA EHS RQ: 5,000; SARA EHS TPQ: 1,000/10,000 pounds;

SARA TR Concentr.: 0.1%; SARA TR Threshold: Standard. NIOSH Standard: 77-112; 91-115. NIOSH/OSHA Guidelines: 92-110. OSHA Analytical

Method # 21 EPA Genetox Program 1988, Positive: Cytogenetics-male germ cell  
EPA Genetox Program 1988, Negative: In vivo cytogenetics-nonhuman bone marrow.  
EPA Genetox Program 1988, Inconclusive: In vivo SCE-nonhuman On EPA IRIS database.



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### **US STATE REGULATIONS**

Based on available information, this material does not contain any components currently known to the State of California to cause cancer, birth defects or reproductive harm at levels, which would be subject to Proposition 65.

#### **Information For Pure Acrylamide**

CALIFORNIA Proposition 65 code: C

DELAWARE Air Quality Management List: DRQ: 5000; Must be reported to the DRQ.

FLORIDA Toxic Substance: Listed as a toxic substance by the state of Florida.

MASSACHUSETTS Haz. Substance codes: 1,2,3,4,5,6\*E\*C\*F8 F9

MINNESOTA Haz. Substance: Codes: ANOR; Hazards: Skin; Carcinogen? Yes.

NEW JERSEY RTK Hazardous Substance: DOT: 2074; Sub. No.: 0022; TPQ: -;

EHS: -

NEW YORK List of Hazardous Substances: RQ--Air: 5000; RQ--Land: 100;

Note: No Note Associated with this chemical. PENNSYLVANIA Haz. Substance code: E WASHINGTON Air Contaminant: TWA (mg): 0.03; Skin: Protective measures should

be taken to prevent or reduce skin absorption

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### **16. OTHER INFORMATION**

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#### **Abbreviations:**

ND-	Not Determined
NA-	Not Applicable
SARA-	Superfund and Reauthorization Act
HMIS-	Hazard Material Information System
WHMIS-	Workplace Hazard Materials Information System
NTP-	National Toxicology Program
OSHA-	Occupational Health and Safety Administration
IARC-	International Agency for Research on Cancer
PROP 65-	California Safe Drinking Water and Toxic Enforcement Act Of 1986
EINECS-	European Inventory of Existing Commercial Chemical Substances

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.