834B-B ***(PART B)***

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Name: 834B-B

Other Product Identifier: Black Flame Retardant Epoxy

Related Part # 834B-375ML, 834B-2.7L, 834B-10.8L, 834B-60L

Recommended Use and Restriction on Use

Use: Hardener for use with epoxy resin

Uses Advised Against: Not for use as spray coating

Details of Manufacturer or Importer

Manufacturer
MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

☎	+1-800-340-0772	☎	+1-905-331-1396
FAX	+1-800-340-0773	**FAX**	+1-905-331-2682
E-MAIL	support@mgchemicals.com		
WEB	www.mgchemicals.com		

E-MAIL (Competent Person): sds@mgchemicals.com

Emergency Phone Number

For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA—Call Verisk 3E at ***+1-866-519-4752*** or ***+1-760-476-3962***
(Service access code: 335388)

For emergencies involving the transport of dangerous goods; 24/7 service
CANADA—Call CANUTEC collect at ***+1-613-996-6666*** or ****666*** on cellular phones

Section 2: Hazard(s) Identification

Classification of the Chemical Material

GHS Categories

Criteria		Category	Signal Word	Pictograms
Serious Eye Damage		1	Danger	Corrosion
Sensitization	Skin	1	Warning	Exclamation
Skin irritation		2	Warning	Exclamation
Reproductive Toxicity	Oral	2	Warning	Health
Hazardous to the Aquatic Environment	Acute	2	*none*	none
Hazardous to the Aquatic Environment	Chronic	2	*none*	Environment

Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Label Elements

Signal Word	**DANGER**
Pictograms	**Hazard Statements**
	H318: Causes serious eye damage
	H361: Suspected of damaging fertility or the unborn child if swallowed
	H317: May cause an allergic skin reaction H315: Causes skin irritation
	H401: Toxic to aquatic life H411: Toxic to aquatic life with long lasting effects

Section continued on the next page

Continued…

Prevention	**Precautionary Statements**
P102	Keep out of reach of children.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing fumes or vapors.
P280	Wear protective gloves and eye protection.
P264	Wash hands thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
Response	**Precautionary Statements**
P308 + P313	IF exposed or concerned: Get medical advice or attention.
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 or doctor.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.
Storage	**Precautionary Statements**
P405	Store locked up.
Disposal	**Precautionary Statements**
P501	Dispose of contents and container in accordance to local, regional, and international regulations.

Hazards Not Otherwise Classified

Other Criteria	**Hazard Statements/Precautionary Statement**	**Signal Word**	**Pictograms**
None	None	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
68082-29-1	fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine	37%
68333-79-9	ammonium polyphosphate	19%
21645-51-2	aluminum trihydrate	18%
1344-28-1	aluminum oxide	12%
138265-88-0	zinc borate	5%
112-57-2	tetraethylenepentamine	2%
112-24-3	triethylenetetramine	2%
1333-86-4	carbon black	0.7%
8052-41-3	Stoddard solvent	0.4%

Section 4: First-Aid Measures

Exposure Condition	*GHS Code: Precautionary Statement*
IF IN EYES	P305 + P352 + P338, P310
Immediate Symptoms	*redness, severe irritation, pain, burns, loss of vision*
Response	Rinse cautiously with water for 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
IF ON SKIN	P302 + P352, P333 + P313, P362 + P364
Immediate Symptoms	*redness, irritation, rash*
Response	Wash affected areas with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse.
IF INHALED	P304 + P340
Immediate Symptoms	*cough, irritation of the respiratory track, burning sensation*
Response	Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED	P301 + P310, P331, P308 + P313
Immediate Symptoms	*nausea, vomiting, diarrhea*
Response	Rinse mouth. Do not induce vomiting. IF exposed or concerned: Get medical advice and attention.

Section 5: Fire-Fighting Measures

Extinguishing Media	In case of fire: Use extinguishing media suitable for surrounding materials.
Specific Hazards	Not flammable or combustible but will burn if involved in a fire. It should self-extinguish when removed from external flame sources. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO_2), zinc oxides, boron oxides, nitrogen oxides (NO_x), ammonia, and other toxic fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

Section 6: Accidental Release Measures

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Avoid breathing the fumes or vapors. Remove or keep away all sources of extreme heat or open flames.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Contain with inert absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable, solvent-resistant container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wipe residue with a paper towel and place dirty towels in container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep out of reach of children.
	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
	Contaminated work clothing should not be allowed out of the workplace.
	Avoid breathing fumes or vapors.
	Avoid release to the environment.
Handling	Wear protective gloves and eye protection.
	Take off contaminated clothing and wash it before reuse.
	Wash hands thoroughly after handling.
	Collect spillage.
Storage	Store locked up.

Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

Chemical Name	Country or Vendor	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
aluminum metal and insoluble compounds [a)]	ACGIH	1 mg/m^3	Not established
	U.S.A. OSHA PEL	15 mg/m^3	Not established
	Canada AB	10 mg/m^3	Not established
	Canada BC	Not established	Not established
	Canada ON	1 mg/m^3	Not established
	Canada QC	10 mg/m^3	Not established
triethylenetetramine	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	U.S.A (WEEL)	1 ppm	Not established
	Canada AB	Not established	Not established
	Canada BC	Not established	Not established
	Canada ON	0.5 mg/m^3 (Skin)	Not established
	Canada QC	Not established	Not established
carbon black [a)]	ACGIH	3 mg/m^3	Not established
	U.S.A. OSHA PEL	3.5 mg/m^3	Not established
	Canada AB	3.5 mg/m^3	Not established
	Canada BC	Not established	Not established
	Canada ON	3.5 mg/m^3	Not established
	Canada QC	3.5 mg/m^3	Not established
Stoddard solvent	ACGIH	100 ppm	Not established
	U.S.A. OSHA PEL	500 ppm	Not established
	Canada AB	100 ppm	Not established
	Canada BC	290 mg/m^3	500 mg/m^3
	Canada ON	100 ppm	Not established
	Canada QC	100 ppm	Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH[1], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) Respirable airborne particles

Section continued on the next page

Engineering Controls

Ventilation

Keep airborne concentrations below the occupational exposure limits (OEL).

Because the carbon black and aluminum compounds are bound to the liquid mixture, it does not present an airborne hazard under normal use. Ensure adequate ventilation if the product is mechanically misted or aerosolized.

Personal Protective Equipment

Eye protection

Wear appropriate protective eyeglasses or chemical safety goggles.

RECOMMENDATION: Use safety glasses with lateral protection (side shields).

Skin Protection

Wear appropriate protective clothing to prevent skin contact.

RECOMMENDATION: Use butyl rubber, neoprene, or other chemically resistant gloves.

Respiratory Protection

If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.

Generally, for emergencies and exposure above 0.5 mg/m^3, use a self-contained breathing apparatus with full face piece operated in a pressure positive mode.

RECOMMENDATION: Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

Section 9: Physical and Chemical Properties

Physical State	Liquid	**Lower Flammability Limit**	1.20%
Appearance	Black	**Upper Flammability Limit**	6.70%
Odor	Mild	**Vapor Pressure @25 °C**	0.095 hPa [0.072 mmHg]
Odor Threshold	Not available	**Vapor Density**	0.42 (Air = 1)
pH	Not available	**Relative Density @25 °C**	1.40
Freezing/Melting Point	Not available	**Solubility in Water**	Practically insoluble
Initial Boiling Point	110 °C [230 °F]	**Partition Coefficient n-octanol/water**	Not available
Flash Point	Not applicable	**Auto-ignition Temperature**	230 °C [446 °F]
Evaporation Rate	Not available	**Decomposition Temperature**	Not available
Flammability	Non Flammable	**Viscosity @25 °C**	Not available

Section 10: Stability and Reactivity

Reactivity	Reacts exothermically with epoxides.
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Excessive heat and incompatible substances. Do not use in a way that forms a mist or aerosolize the product.
Incompatibilities	Strong oxidizing agents, strong acids, and strong bases.
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

Section 11: Toxicological Information

Summary of Effects and Symptoms by Routes of Exposure

Eyes	May cause chemical burns or severe eye irritation, redness, loss of vision and pain.
Skin	May cause pain, rash, and serious skin irritation. May cause skin sensitization. Triethylenetetramine can be absorbed through skin.
Inhalation	Hot triethylenetetramine vapors may result in respiratory tract irritation and itching of the face with erythema and edema. May cause nose, throat and lung irritation. Inhalation of vapors, dust, or mist may cause irritation to the upper respiratory tract.
Ingestion	Single dose oral toxicity is low. It may cause nausea, vomiting, diarrhea, burns or severe irritation to the digestive tract.
Chronic	Prolonged and repeated exposure may lead to skin sensitization reactions. Long term exposure to carbon black dust or mist may cause cancer. Long term exposure to zinc borate dust or mist may cause reproductive harm.

Section continued on the next page

Lethal Exposure Concentrations

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine	Not available	Not available	Not available
ammonium polyphosphate	500 mg/kg Rat	Not available	Not available
aluminum trihydrate	>5 000 mg/kg Rat	Not available	Not available
aluminum oxide	2 000 mg/kg Rat	Not available	2.3 mg/L 4h (dust) Rat
tetraethylenepentamine	3990 mg/kg Rat	659 mg/kg Rabbit	Not available
triethylenetetramine	2 500 mg/kg Rat	805 mg/kg Rabbit	Not available
zinc borate	10 000 mg/kg Rat	10 000 mg/kg Rat	Not available
carbon black	>5 000 mg/kg Rat	>3 000 mg/kg Rabbit	Not available
Mixture ATE	2179 mg/kg	>5 000 mg/kg	19 mg/L (dust)

Note: Toxicity data from the ECHA databases were consulted. The data from supplier SDSs were also consulted.

Section continued on the next page

Other Toxicological Effects

Skin corrosion/irritation	The concentrations of tetraethylenepentamine and triethylenetetramine can cause skin irritation.
Serious eye damage/irritation	The fatty acids, c18-unstured dimers, polymer, the tetraethylenepentamine and triethylenetetramine can cause severe eye damage.
Respiratory and skin sensitization (allergic reactions)	Several epoxy hardener components (CAS# 68410-23-1, 112-57-2, and 112-24-3) may cause skin sensitization in humans.
Carcinogenicity (risk of cancer)	The carbon black is possibly carcinogenic by airborne routes of exposures. Because they are both bound in the epoxy liquid mixture, it is not expected to be available as an airborne hazard (dust, mist, or spray) under normal use.
	Carbon Black [1333-86-4]
	IARC Group 2B: Possibly carcinogenic to humans
	ACGIH A4: Not classified as a human carcinogen
	CA Prop 65: Listed as a carcinogen (airborne, as unbound particles of respirable size)
	NTP: Not listed
Mutagenicity (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.
Reproductive Toxicity (risk to sex functions)	Animal ingestion studies show that high doses of zinc borate cause reproductive and developmental effects.
Teratogenicity (risk of fetus malformation)	Based on available data, the classification criteria are not met.
STOT-single exposure	Based on available data, the classification criteria are not met.
STOT-repeated exposure	Stoddard solvent, can affect the central nervous system by inhalation causing drowsiness or dizziness
Aspiration hazard	Based on available data, the classification criteria are not met. The kinematic viscosity is >20.5 mm^2/s at 40 °C.

Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (http://echa.europa.eu), and other reliable sources.

The fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine (CAS# 68082-29-1) was classified as a chronic category 2 environmental toxicant.

Tetraethylenepentamine (CAS#112-57-2) is an acute category 2 environmental toxicant with minimal LC50 96 h of 420 mg/L for Poecilia reticulata (guppy), EC50 48 h of 24 mg/L for Daphnia magna (water flea), and IC50 72 h of 2 mg/L for Pseudokirchneriella subcapitata (green algae)

Literature for the triethylenetetramine (CAS# 112-24-3) suggest low category 3 aquatic toxicity (LC50, IC50, and EC50 values of >100 mg/L for fish and between 10 and 100 for algae).

The zinc borate is classified as a chronic category 1 environmental toxicant with a M-Factor of 1 (with minimal LC50 96 h of 2.4 mg/L for Oncorhynchus mykiss (rainbow trout); LC50 48 h of 76 mg/L Daphnia magna (water flea); and transformation/dissolution endpoint for zinc borate powder that release of 0.452 mg/L of zinc ion, which is higher than zinc's NOEC limit).

Based on available data, ammonium polyphosphate, aluminum trihydrate, aluminum oxide and carbon black is not classified as environmental hazard according to GHS criteria.

Acute Ecotoxicity

Category 2

Toxic to aquatic life

Avoid release to the environment.

Chronic Ecotoxicity

Category 2

Toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

Not available

Bioaccumulation

834B-B ***(PART B)***

Not available

Section 13: Disposal Considerations

Dispose of contents in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information

Ground

Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations); **USA DOT 49 CFR** (Parts 100 to 185) **Regulations.**

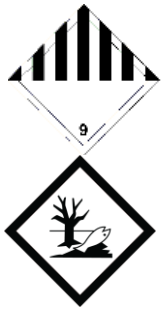
Sizes 5 L and under
Part B of 834B-375ML, 834B-2.7L kits, 834B-10.8L kits
NOT REGULATED in TDG
per Special Provisions 99

Sizes 5 L and under
Part B of 834B-375ML, 834B-2.7L kits, 834B-10.8L kits

NOT REGULATED in 49 CFR
per exception 171.4 (c)(2)

49 CFR: Sizes greater than 5 L
Part B of 834B-60L kits

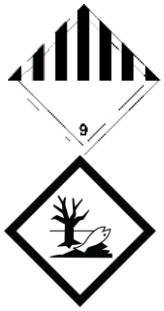
UN number: UN3082
Shipping Name:
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,N.O.S. (fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine)
Class: 9
Packing Group: III
Marine Pollutant: Yes



Special Provision 99 (2): These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods that could endanger public safety.

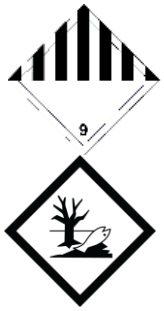
Note: The 834B-375ML, 834B-2.7L, and 834B-10.8L kits are composed of separate containers which meet this inner packaging limit.

Air

Refer to ICAO-IATA Dangerous Goods Regulations.	
Sizes 5 L and under: *Part B of 834B-375ML, 834B-2.7L kits, 834B-10.8L kits* **NOT REGULATED** Not Restricted, as per Special Provisions **A197**	Sizes greater than 5 L: *Part B of 834B-60L kit* **UN number**: UN3082 **Shipping Name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine) **Class**: 9 **Packing Group**: III **Marine Pollutant**: Yes 
Special Provision A197: These substances when transported in single or combination packagings containing net quantity per single or inner packaging of less than 5 L or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packagings meet the general provisions 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.	

Section continued on the next page

Sea

Refer to IMDG regulations.	
Sizes 5 L and under: *Part B of 834B-375ML, 834B-2.7L kits, 834B-10.8L kits* **NOT REGULATED** per 2.10.2.7	Sizes greater than 5 L: *Part B of 834B-60L kit* **UN number**: UN3082 **Shipping Name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids and triethylenetetramine) **Class**: 9 **Packing Group**: III **Marine Pollutant**: Yes 
2.10.2.7: Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to any other provision of this Code relevant to marine pollutants provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. In the case of marine pollutants also meeting the criteria for inclusion in another hazard class, all provisions of this Code relevant to any additional hazards continue to apply.	

Note: **Shipper must be appropriately <u>trained and certified</u> before involvement with the transport of dangerous goods.**

Section 15: Regulatory Information

Canada

Domestic Substance List (DSL)/Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL/NDSL.

Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

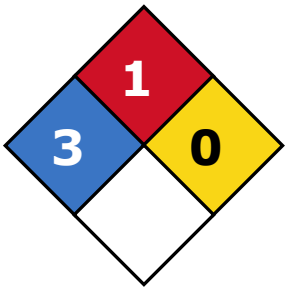
USA

Other Classifications

HMIS® RATING

HEALTH:	* 3
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES



Approximate HMIS and NFPA Risk Ratings Legend:
0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

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CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45

This product does not contain ingredients that are subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, USA).

This product contains carbon black, but it is bound and exposures during normal conditions of uses are below the Safe Harbor Threshold.

Europe

RoHS (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

WEEE (Waste Electrical and Electronic Equipment Directive)

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

MSDS Prepared by MG Chemicals' Regulatory Department

Date of Revision 07 June 2023

Supersedes 02 March 2020

Reason for Changes: Reclassification

Section continued on the next page

Reference

1) ACGIH *2023 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices*, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2023).

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
NOELR	No observable effect loading ratio
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

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Disclaimer This safety data sheet is provided as an information resource only. *M.G. Chemicals, Ltd.* believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to query and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the

product in accordance with local, regional, national, and international regulations.