

Sharda International Africa (Pty) Ltd

(Co. Reg. No. 2010/002268/07)
P.O. Box 82021, Southdale, 2135, South Africa.

Tel: 031 764 3011

Email: rsa.regn@shardaintl.com, Website: <http://www.shardaintl.com>

SECTION 1. Chemical product and company identification

Product identifier:

Identification as on the label/Trade name: Commander GR

Additional information: Bromacil: 80 g/kg + Terbutylazine: 120 g/kg

Relevant identification uses of the substance and uses advised against:

Identified uses: Herbicide

Uses advised against: Use only as directed.

Details of the supplier of the Safety Data Sheet:

Company name: Sharda International Africa (Pty) Ltd

Address: P.O. Box 82021, Southdale, 2135

Phone number.: 031-764-3011

Emergency telephone numbers:

UNITAS Hospital: 0800-111-9900

Tygerberg Hospital: 021-931-6129

Netcare 911: 082911

SECTION 2. HAZARD IDENTIFICATION

Classification of the substances or mixture

The mixture is classified according to

SANS 10234:2008, Regulation EC 1272/2008 [EU-GHS/CLP]	
Hazard classes/Hazard categories	Hazard statement
Acute toxicity oral	H303 May be harmful if swallowed.
Skin irritation	H316 Causes mild skin irritation.
Eye irritation	H319 Causes serious eye irritation.
Specific target organ toxicity repeated exposure	H373 May cause damage to organs through prolonged or repeated exposure.
Hazardous to the Environment	H400 Very toxic to aquatic life H412: Harmful to aquatic life with long lasting effects.

For full text of H statements see section 16

The most important adverse effects

The most important adverse physiochemical effects: None.

The most important adverse human health effects: May be harmful if swallowed. Causes mild skin irritation. Causes serious eye irritation. May cause damage to organs through prolonged or repeated exposure

Label elements



Hazard pictograms:

Signal Word: Warning

Hazard Statements: H303 May be harmful if swallowed. H316 Causes mild skin irritation. H319 Causes serious eye irritation. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life
H412: Harmful to aquatic life with long lasting effects.

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Precautionary Statements: P260 - Do not breathe dust/fume/gas/mist/vapours/spray. P264 + P280 - Wash face, hands and any exposed skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. P273 - Avoid release to the environment. P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332 + P313 - If skin irritation occurs: Get medical advice/attention. P337 + P313 - If eye irritation persists: Get medical advice/attention. P391 - Collect spillage. P501 - Dispose of contents/container according to local regulations.

Special labelling of certain mixtures: None

Other hazards: None

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture

Ingredients:

Substance name (IUPAC/EC)	CAS –No.	Concentration % by weight	Classification
			EC1272/2008
Bromacil	314-40-9	8	Acute Oral Category 4 Aquatic acute Category 1 Aquatic chronic Category 1
Terbuthylazine	5915-41-3	12	Acute Oral Category 4 STOT RE Category 2 Aquatic acute Cat 1 (M=10) Aquatic chronic Cat 1 (M=10)
Sodium dodecyl sulphate	151-21-3	2.5	Acute Oral Category 4 Skin Irritation Category 2 Eye Damage category 1 Aquatic Chronic category 3 Flammability Sol. Category 2 Acute Toxicity category 4 Inhalation STOT SE Category 3
Sodium polycarboxylate	37199-81-8	11.5	Not classified
Lignosulfonic acid, sodium salt	861-51-6	6.2	Eye irritant category 2
Talc	14807-96-6	59.8	Not classified

For full text of H statements see section 16

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.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4. FIRST AID MEASURES

Description of first aid measures:

In case of skin contact:

Wash skin for at least 15 minutes with fresh running water and soap, including hair and under fingernails. Remove contaminated clothing and wash before reuse. Treat symptomatically

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In case of eye contact:

Flush immediately with clear clean running water for about 15 minutes. Hold eyelids apart to rinse the entire surface of the eye and lids. If eye symptoms (redness, irritation or pain) persist refer patient to ophthalmologist for examination of eye.

In case of ingestion:

Seek medical advice immediately. Rinse mouth thoroughly. Give 1 or 2 glasses of water to drink and induce vomiting if person is conscious. Never give anything by mouth to an unconscious person. Apply artificial respiration if necessary. The patient should be kept under observation for at least 48 hours. Treat symptomatically.

Most important symptoms and effects, both acute and delayed:

Inhalation: Harmful if inhaled

Skin contact: may cause an allergic skin reaction

Eye contact: causes serious eye irritation

Anticipated delayed effects:

May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure

Most important symptoms/effects: None known.

Advice to physician:

Ingestions of small amounts (less than 10mg bromacil / kg body weight) occurring less than an hour before treatment, are probably best treated by: Syrup of Ipecac, followed by 1-2 glasses of water. Dose for adults and children over 12 years: 30 ml. Dose for children under 12 years: 15 ml.

INGESTION of LARGE amounts (more than 10 mg bromacil / kg) occurring less than an hour before treatment, should probably be treated by gastric lavage:

- A. INTUBATE stomach and ASPIRATE contents.
- B. LAVAGE stomach with slurry of ACTIVATED CHARCOAL in 0.9% saline.
Leave 30-50 gm activated charcoal in the stomach before withdrawing Tube
- C. SODIUM SULFATE, 0.25 gm/kg in tap water, as a cathartic.

CAUTION: Hydrocarbons (kerosene, petroleum distillates) are included in some formulations of these chemicals.

Ingestion of very LARGE AMOUNTS may cause CNS depression. In this case, IPECAC IS CONTRAINDICATED. Also, gastric intubation incurs a risk of HYDROCARBON PNEUMONITIS.

For this reason observe the following precautions:

- 1) If the victim is unconscious or obtunded and facilities are at hand, insert an ENDOTRACHEAL TUBE (cuffed, if available) prior to gastric intubation.
- 2) Keep victim's HEAD BELOW LEVEL OF STOMACH during intubation and lavage (Trendelenburg, or left lateral decubitus, with head of table tipped downward). Keep victim's head turned to the left.
- 3) ASPIRATE PHARYNX as regularly as possible to remove gagged or vomited stomach contents.

INGESTIONS occurring MORE THAN an HOUR before treatment are probably best treated only by ACTIVATED CHARCOAL, 30-50 gm, and SODIUM or MAGNESIUM SULFATE, 0.25 gm/kg, as described above. There are no specific antidotes for these chemicals. Because manifestations of toxicity do occasionally occur in peculiarly predisposed individuals, MAINTAIN CONTACT with victim for at least 72 hours so that unexpected adverse effects can be treated promptly.

Product inhaled: Move victim from contaminated area to fresh air. Apply artificial respiration if necessary. Keep warm at rest. Treat symptomatically. Consult a physician after significant exposure.

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Indication of any immediate medical attention and special treatment needed:

Immediate medical attention is required if exposure to the product. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

SECTION 5. FIRE -FIGHTING MEASURE

Extinguisher media:

Suitable extinguisher media: Extinguish small fires with carbon dioxide or dry chemical. Extinguish large fires with foam or water.

SMALL FIRE: See above.

LARGE FIRE: See above.

Unsuitable extinguishing media: Do not use high volume water jet, due to contamination risk.

Specific hazards arising from the mixture: None know

Specific extinguishing methods:

Extinguishing media must not be used for safety reasons: high volume water jet (contamination risk). Fires generate poisonous and corrosive fumes containing: carbon oxides, nitrogen oxides and hydrochloric acid. Specific methods: (on small fires) if area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. If conditions permit, cool containers / tanks with spray water.

Advice for fire-fighters:

Wear NIOSH/MSHA approved self-contained breathing apparatus and full protective gear. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6. ACCIDENTAL RELEASE

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: Keep all personal away. Avoid contact with eyes and skin. Ventilate area of spill or leak, especially in contained areas.

For emergency responders: Wear appropriate personal protective equipment. Avoid contact and ventilate area of the spill or leakage.

Protective equipment:

Wear protective clothing. Avoid breathing dust. If necessary, wear a self-contained breathing apparatus. Refer to Section 8 for personal protective equipment to be worn during containment and clean-up of a spill.

Emergency procedures:

Alert fire-fighting personnel, evacuate unprotected personal and animals

Environmental precautions:

Do not contaminate ponds, waterways or ditches with chemical or used container. Do not allow to enter drainage systems, surface or ground water. If the product enters watercourses or sewers or contaminate soil or plants, inform competent authority.

Methods and materials for containment and cleaning up:

Material for containment and cleaning up:

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Small spill: Do not use water to collect spilled product. Collect by sweeping or suction after mixing with bentonite, fossil flour, sand or sawdust into hermetically sealed containers and dispose of according to local regulations. Use approved industrial vacuum cleaner for removal.

Large spill: Do not use water to collect spilled product

Reference to other sections:

See section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See section 13 for information on disposal.

Additional information: None.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

This product should only be stored or applied using stainless steel, aluminium, fibreglass or plastic lined containers. Do not mix, store or apply in galvanized or unlined mild steel containers or spray tanks. The product can react with such containers and tanks or produce hydrogen gas, which may form a highly combustible mixture that can flash or explode, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Handling: Keep away from heat and open flame. Harmful if swallowed. Avoid contact with skin, eyes and clothing. Do not leave the product in the applicator for long periods. Use with adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the herbicide gets inside, then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high-water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Protective measures: Observe directions on label and instructions for use.

Advice on general occupational hygiene: practice good hygiene when using this material. Wash hands before eating, drinking, chewing gum, smoking, using the toilet, or applying cosmetics. Worker should shower at the end of each workday. Launder all clothing before it is re-used. Do not eat, drink or smoke when handling this product.

Conditions for safe storage, including incompatibilities:

Store in sealed original containers, in a well-aired, fresh and dry storehouse and in shaded places. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from direct sunlight, open flame, food, seed, animals, children and uniformed persons. Store at temperature not exceeding 40°C. Do not leave in applicators for extended periods.

Incompatible substances: None known

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters:

Occupational exposure limits: Bromacil: ADI (acceptable daily intake) 0.13

mg/kg body weight daily.

1 ppm (10 mg/m³) OSHA TWA

1 ppm (10 mg/m³) ACGIH TWA

2 ppm ACGIH STEL

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1 ppm (10 mg/m³) NIOSH

Recommended TWA

Terbuthylazine: ADI 0.0035 mg/kg body weight daily.

Exposure control:

Appropriate engineering controls:

Ensure adequate ventilation, especially in confined areas. Use only outdoors in a well ventilated area. Comply with occupational safety, environmental, fire, and other applicable regulations.

Respiratory protection: Avoid inhaling dust. Use effective dust mask

Hand protection: Protective (impermeable) gloves

Eye/face protection: Wear eye protection. Safety glasses

Skin and body protection: Long-sleeved shirt, long pants, shoes plus socks, protective (impermeable) gloves

Environmental exposure controls: Environmental manager must be informed of all major spillages.

Other protection:

Do not eat, drink or smoke while handling this product. Prevent contamination of food, feeds, drinking water and eating utensils. After using this product wash hands and face before eating. Take extreme care to avoid dust. Wash accurately (preferably a shower) after work shift. Wash hands during breaks and at the end of the work with soap and water.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance: Granular herbicide; light grey/brown in colour.

pH: Not applicable.

Boiling point: Not Applicable

Auto flammability: Combustible –stable up to the melting point.

Melting point: Bromacil: 157.5 - 160°C; Terbuthylazine: 177-179°C

Explosive properties: Bromacil: Combustible – stable up to the melting point. Airborne Bromacil dust may ignite.

Flash point: Bromacil: Combustible Terbuthylazine > 150°C

Oxidizing properties: Not available

Flammability: Non-flammable

Vapour pressure: Not applicable.

Solubility – water: Bromacil: 807 mg/ℓ (pH 5), 700 mg/ℓ (pH 7), 1287 (pH 9) at 25°C; Terbuthylazine: 8.5 mg/ℓ at 20°C.

Solubility – solvent:

Terbuthylazine: 100 g/ℓ dimethylformamide; 40 g/ℓ ethyl acetate; 14.3 g/ℓ octan-1-ol.

Bromacil: In ethanol 134 g/ℓ; acetone 167 g/ℓ; acetonitrile 71 g/ℓ; xylene 32.3% aqueous sodium hydroxide 88 g/ℓ, all at 25°C. Moderately soluble in acetone, strong aqueous bases, acetonitrile, and ethyl alcohol. Only slightly soluble in hydrocarbons.

Solubility – coefficient: Bromacil: Partitioning coefficient (n-octanol/water) 75(pH 5), 74.4 (pH 7).

Neurotoxicity:

Bromacil: Not available;

Terbuthylazine: In case of heavy intoxication, symptoms of excitement and depression of the central nervous system may appear.

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SECTION 10. STABILITY AND REACTIVITY

Reactivity:

The product is stable under normal warehouse conditions.

Chemical stability:

The product is stable for 2 years at ambient temperature and pressure, under normal storage and handling conditions. Avoid storage under extreme temperatures and conditions. Store below 50°C, preferably below 30°C, and not for prolonged periods in direct sunlight.

Possibility of hazardous reactions:

None known

Conditions to avoid:

Avoid sources of heat, free flames or spark generating equipment. Bromacil: Further information: During processing, dust may form explosive mixture in air.

Incompatible materials:

This product should only be stored or applied using stainless steel, aluminium, fibreglass or plastic lined containers. Do not mix, store or apply in galvanized or unlined mild steel containers. The product can react with such containers and tanks or produce hydrogen gas, which may form a highly combustible mixture that can flash or explode, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source. Do not mix with other herbicides or pesticides except for products mentioned on the product label.

Hazardous decomposition products:

Thermal decomposition product may include toxic and corrosive fumes of chlorides and toxic oxides of carbon and nitrogen.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

ACUTE TOXICITY:

Bromacil	
Acute toxicity	
Acute Oral LD ₅₀ (rats)	2000 mg/kg
Acute Oral LD ₅₀ (female rats)	1300 mg/kg
Acute Dermal LD ₅₀ (rabbit):	>5000 mg/kg
Acute Inhalation LC ₅₀ (rat)	>5.6 mg/ℓ air
Skin irritation/ corrosion (rabbits)	Moderate skin irritant
Eye damage / irritation (rabbits)	Mild eye irritant
Respiratory or skin sensitization	Non-sensitizing
Germ cell mutagenicity	Several mutagenic screening tests have not found Bromacil to be mutagenic.
Carcinogenicity	No data available
Reproductive toxicity	Did not affect the reproduction and lactation performance of rats fed 0 or 12.5 mg/kg/day for 3 generations.
Specific Target Organ Toxicity STOT single exposure	No data available
Specific Target Organ Toxicity STOT repeated exposure	
Aspiration hazard	No data available

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Terbuthylazine CAS 5915-41-3	
Acute toxicity	
Acute Oral LD ₅₀ (rat)	1590 mg/kg
Acute Dermal LD ₅₀ (rat):	>2000 mg/kg
Acute Inhalation LC ₅₀ (rat)	>5.3 mg/ℓ air
Skin irritation/ corrosion (rabbits)	Not irritating
Eye damage / irritation (rabbits)	Not irritating
Respiratory or skin sensitization	Not a skin sensitizer
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific Target Organ Toxicity STOT single exposure	No data available
Specific Target Organ Toxicity STOT repeated exposure	
Aspiration hazard	No data available

Chronic toxicity:

Bromacil: NOEL (no observable effect level) – In 2 year feeding trials, no ill-effects were observed in rats and dogs receiving 250 mg/kg diet; ADI (acceptable daily intake) 0.13 mg/kg body weight daily. There was no evidence of teratogenicity or carcinogenicity in these chronic studies.

Terbuthylazine: NOEL (12 months) for dogs 0.4 mg/kg daily; (lifetime) for rats 0.35 mg/kg daily; 2 year for mouse 16.8 mg/kg daily; ADI 0.0035 mg/kg.

Carcinogenicity: See section 3.

SECTION 12. ECOLOGICAL INFORMATION

Anticipated behaviour of the chemical product in the environment /possible environmental impact/ecotoxicity:

Bromacil	
Acute toxicity	
Birds:	
LD ₅₀ for Bobwhite quail	2250 mg/kg
Dietary LC ₅₀ (8 d) for mallard duck and bobwhite quail	>10000 mg/kg diet
Fish:	
LC ₅₀ (96 h) Rainbow trout	36
LC ₅₀ (96 h) bluegill sunfish	127 ppm
NOE (96 h) for sheepshead minnows	95.6 mg/ℓ
Daphnia	
EC ₅₀ (48 h)	121 ppm
Algae	
EC ₅₀ for <i>Selenastrum capricornutum</i>	6.8 ppb
Other aquatic spp.	
LC ₅₀ (96 h) for mysid shrimps (<i>Mysidopsis bahia</i>)	112.9 mg/ℓ
EC ₅₀ (48 h) oyster embryo larvae	130 mg/ℓ
Bees:	
LD ₅₀ (contact)	Not toxic to bees >193 µg/bee

Terbuthylazine CAS 5915-41-3	
Acute toxicity	
Birds:	
LD ₅₀ for ducks and Japanese quail	>2000 mg/kg
Dietary LC ₅₀ (8 d) for ducks and quail	>5620 ppm
Fish:	
LC ₅₀ (96 h) Rainbow trout	2.2
LC ₅₀ (96 h) mirror carp	>5.7 mg/ℓ
Daphnia	

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EC ₅₀ (48 h)	≥69.3 mg/ℓ
Algae EC ₅₀ for <i>Selenastrum capricornutum</i>	0.016 mg/ℓ
Worms LC ₅₀ (14 d) for earthworms	>1000 mg/kg soil
Bees: LD ₅₀ (oral and contact)	>200 µg/bee

Biodegradability:

Terbuthylazine: Microbial degradation proceeds mainly by de-ethylation and hydroxylation, with eventual ring cleavage. DT50 30-60 days in biologically active soil.

Bromacil: Duration of residual activity in soil is c.5 months. The principle metabolite is 5-bromo-3-sec-butyl-6-hydroxymethyluracil. The major mode for the disappearance of Bromacil from most treated soils is microbial degradation. Soil diphtheroids, Pseudomonas and Penicillium species are among the organisms involved. Tests show that at increased temperatures and long exposures to sunlight, there is very little loss of the herbicide from dry soil. It does not readily volatilize, or change into a gas, nor does it photo decompose, or break down in sunlight. Laboratory studies show that 5-30% of Bromacil is lost six to nine weeks after application to the soil, as carbon dioxide, an odourless, colourless gas.

Bio-accumulation: Bromacil: Log POW = 1.87 (pH 5 / pH 7)

Mobility:

Bromacil: Highly mobile. Bromacil binds, or adsorbs, only lightly to soil particles (Koc = 32 g/mℓ), is soluble in water, and has a relatively lengthy soil half-life (60 days). For these reasons, Bromacil is expected to move (leach) quite readily through the soil and it can contaminate groundwater.

Terbuthylazine: Leaches only slightly. Adsorption on soils is strong: Kd 2.2-25, Koc 162-278 are typical values for light agricultural soils.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

General Information: Do not discharge into drains, water courses or onto the ground. Discharge, treatment or disposal may be subject to national, state, or local laws. Empty containers may contain product residues. Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product cannot be reused or re-processed. Never pour untreated waste or surplus product into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Comply with local legislation applying to waste disposal. The product may be taken to a registered waste disposal site or incineration plant.

Disposal Methods: Destroy the container by perforating and flattening and dispose of through an approved waste dump site, incineration plant or recycling company.

Container: Since emptied containers retain product residue, follow label warnings even after container is emptied.

Product/ packaging disposal:

Treat as hazardous waste and dispose of in accordance with municipal, provincial and national regulations.

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SECTION 14. TRANSPORT INFORMATION

UN Number: 3077
Un proper shipping name Bromacil: 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Contains Bromacil) 9, 12(c), ADR
UN Classification transport hazard class(es): 9
Packing group (if applicable) III
Marine pollutant (Y/N) Yes, Considered a marine pollutant
Transport in bulk according to MARPOL 73/78, Annex II and the IBC Code: Not available

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation for the mixture:

Relevant information regarding authorization: Occupational Health and Safety Act 1993 Regulation for Hazardous Chemical Substances.

Relevant information regarding restrictions:

EU regulations: Regulation EC 1272/2008 [EU-GHS/CLP] and EU directives 67/548/EEC or EC 1999/45/EC

Other National regulations: National Road Traffic Act, 1996 (ACT NO. 93 of 1996).

SANS 11014:2010 – Safety data sheet for chemical products, Content and order section

SANS 10228:2012- The identification and classification of dangerous goods for transport by road and rail modes.

National Environmental Management: Waste Act 59 of 2008.

Chemical Safety Assessment carried out? No

SECTION 16. OTHER INFORMATION

Indication of changes:

GHS aligned

Relevant classification and H statements (number and full text):

H303: May be harmful if swallowed. H316: Causes mild skin irritation. H319: Causes serious eye irritation. H373: May cause damage to organs through prolonged or repeated exposure. H400: Very toxic to aquatic life. H412: Harmful to aquatic life with long lasting effects

Training instructions:

Use as indicated on the label, special training may be required for application.

Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Notice to readers:

To the best of our knowledge, the information contained herein is accurate and is based on the present state of our knowledge and does not therefore guarantee specific properties. However, neither the above-named supplier nor any of its subsidiaries assumes any liability whatsoever for any accuracy or completeness of the information contained herein.

Final determinations of suitability of any material are sole responsibility of the users, who must take responsibility for observing existing laws and regulations. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.