1. IDENTIFICATION

Product name:	**TRIANGLE® Herbicide** (EPA Reg. No. 66222-131-55467)
Chemical name of active ingredient(s):	Metolachlor: 2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-methylethyl)acetamide Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine
Manufacturer/Registrant:	Tenkoz, Inc. 1725 Windward Concourse, Suite 410 Alpharetta, GA 30005 Phone: 770-343-8509
For fire, spill, and/or leak emergencies, contact CHEMTREC:	Phone: 1-800-424-9300
For medical emergencies and health and safety inquiries, contact CHEMTREC:	Phone: 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	%	ACGIH/TLV	OSHA/PEL	OTHER	NTP/IARC/OSHA (Carcinogen)
Metolachlor	51218-45-2	34.5	NA	NA	NA	NA
Atrazine	1912-24-9	28.6	5 mg/m^3	5 mg/m^3	NA	IARC: Group 3*
Benoxacor	98730-04-2	< 5	NA	NA	NA	NA
1, 2-propanediol	57-55-6	< 3	100 mg/m^3	125 mg/m^3	NA	NA

NA: Not applicable
* IARC Group 3: The agent (mixture or exposure circumstance) is unclassifiable as to carcinogenicity to humans.

3. HAZARDS IDENTIFICATION

PHYSICAL PROPERTIES:
Appearance: Ivory liquid

EMERGENCY OVERVIEW: Causes moderate eye irritation. Harmful is swallowed, inhaled, or absorbed through the skin. Avoid contact with skin, eyes, and clothing. Avoid breathing vapor or spray mist. This product may cause skin sensitization reactions in some people.

PRIMARY ROUTES OF EXPOSURE: Eye and skin contact, inhalation.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

4. FIRST AID

FIRST AID	
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious or convulsing person.
IF INHALED:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a Poison Control Center or doctor or going for treatment. You may also contact CHEMTREC at 1-800-424-9300 for emergency medical treatment information.	

NOTE TO PHYSICIAN: If product is ingested, induce emesis and lavage stomach. The use of an aqueous slurry of activated charcoal can be considered.

5. FIRE FIGHTING MEASURES

FLASH POINT: >100°C
FLAMMABLE LIMITS (% IN AIR): Not applicable
AUTOIGNITION TEMPERATURE: Not applicable
FLAMMABILITY: Not applicable
FIRE & EXPLOSION HAZARD: None known.
SUITABLE EXTINGUISHING MEDIA: Dry chemical, foam, or carbon dioxide (CO_2).
FIRE-FIGHTING PROCEDURES: Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes, or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: For small spills cover with an absorbent material. Sweep up and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Dispose in accordance with local, state and federal regulations. Flush the area with water to remove any residue. Do not allow wash water to contaminate water supplies. Take special care to avoid contamination of equipment and facilities during cleanup procedure and disposal of wastes. Do not contaminate water, food, or feed by disposal or cleaning of equipment.

FOR 24-HOUR EMERGENCY ASSISTANCE (SPILL, LEAK OR FIRE), CALL CHEMTREC AT (800) 424-9300.

7. HANDLING AND STORAGE

Do not contaminate water, food, or feed by storage or disposal

PRECAUTIONS TO BE TAKEN IN HANDLING: Read label carefully before use. Avoid contact with skin, eyes, or clothing. In case of skin contact, carefully remove contaminated clothing and wash affected area with soap and water. Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment. Avoid contact with skin or eyes. Wash thoroughly with soap and water after handling. Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored. Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in a cool dry place. Store product in original container only.

STORAGE TEMPERATURE (MIN/MAX): Normal ambient storage temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT. FOR COMMERCIAL APPLICATION AND ON-FARM APPLICATIONS, CONSULT THE PRODUCT LABEL.

INGESTION: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.
EYE CONTACT: To avoid eye contact, wear safety glasses with side shields or chemical goggles.
SKIN CONTACT: To avoid skin contact, wear chemical-resistant gloves, shoes plus socks, long-sleeved shirt, long pants and a head covering (for overhead exposure).
INHALATION: Ensure good ventilation. If not adequate, wear suitable respirator for spray mist.
USER SAFETY RECOMMENDATIONS:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing / PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

- Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

EXPOSURE GUIDELINES: Refer to Section 2.
ENGINEERING CONTROLS: Refer to product label.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Ivory liquid
SPECIFIC GRAVITY/DENSITY: 1.12 g/ml (9.34 lb/gal)
pH: 6.61±0.07
FLASH POINT: > 100°C
VAPOR PRESSURE: Atrazine: 0.04 mPa @ 20°C
Metolachlor: 1.7 mPa @ 20°C
WATER SOLUBILITY: Atrazine: 28 mg/L @ 20°C
Metolachlor: 530 mg/L @ 20°C

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal ambient and anticipated storage conditions.
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID: None known
HAZARDOUS DECOMPOSITION PRODUCTS: None known
MATERIALS TO AVOID: 10% potassium permanganate

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY/IRRITATION STUDIES (METOLACHLOR)

Acute Oral LD_{50} (Rat): >2,500 mg/kg
Acute Dermal LD_{50} (Rat): >4,000 mg/kg
Acute Inhalation LC_{50} (Rat): >2.02 mg/L (4-hours)
Eye Irritation (Rabbit): Mildly irritating
Dermal Irritation (Rabbit): Mildly irritating
Dermal Sensitization (Guinea Pig): Not a skin sensitizer

EFFECTS OF CHRONIC EXPOSURE:

ATRAZINE:

40% of rats receiving oral doses of atrazine in 20 mg/kg/day amounts for 6 months died with signs of respiratory distress and paralysis of the limbs. Structural and chemical changes were observed in the brain, heart, liver, lungs, kidney, ovaries, and endocrine organs. Rats fed 5 or 25 mg/kg/day of atrazine for 6 months exhibited growth retardation. In a 2-year study with dogs, 7.5 mg/kg/day caused decreased food intake and increased heart and liver weights. At 75 mg/kg/day, there were decreases in food intake and body weight gain, increased adrenal weight, lowered blood cell counts, and occasional tremors or stiffness in the rear limbs.

METOLACHLOR:

While metolachlor is not readily absorbed by the skin, repeated dermal exposures may create skin sensitization, especially among those who work with this substance. In rats fed metolachlor for 90 days, no effects were noted at about 90 mg/kg/day. In a 2-year study of mice, a similar no-effect level was found, but doses of about 300 mg/kg/day caused decreased body weight gain. No negative effects on mortality or organ weights were observed in male or female rats at doses of 15 mg/kg/day. Exposed females showed significantly lower weight gain and microscopic changes in their liver structure at 150 mg/kg/day.

CARCINOGENICITY:

ATRAZINE:

Atrazine did not cause tumors when mice were given oral doses of 21.5 mg/kg/day from age 1 to 4 weeks, followed by dietary doses of 82 mg/kg for an additional 17 months. Mammary tumors were observed in rats after lifetime administration of high doses of atrazine. The available data regarding atrazine's carcinogenic potential are inconclusive.

METOLACHLOR:

Male and female mice exposed to doses up to 100 mg/kg/day for 18 to 20 months did not develop cancer, nor did male rats at doses of up to 150 mg/kg/day over a 2-year period. Female rats given high doses for 2 years showed a significant increase in new growths, nodules, and lesions in livers at that dose. From these data, it seems unlikely that metolachlor is carcinogenic in humans.

MUTAGENICITY:

ATRAZINE:

The weight of evidence from more than 50 studies indicates that atrazine is not mutagenic.

METOLACHLOR:

Metolachlor tested negative in two bacterial assays. Also, no mutagenicity effects were noted in a standard mouse test. From this evidence it is unlikely that the compound is mutagenic.

REPRODUCTIVE TOXICITY:

ATRAZINE:

Dietary doses of atrazine given to rats on days 3, 6 and 9 of gestation up to about 50 mg/kg/day caused no adverse reproductive effects.

METOLACHLOR:

In two long-term rat reproduction studies, mating, gestation, lactation, and fertility were not affected at doses of 50 mg/kg/day. However, pup weights and parental food consumption decreased at this low dose. In another 2-year rat study, metolachlor caused the wasting of testicles at doses of 150 mg/kg/day. In studies on mice, no effects were noted on fertility, or zygote or embryo survival rates after very high single oral doses. This evidence suggests that metolachlor is not likely to have an effect on reproduction in humans under normal circumstances.

TERATOGENICITY:

ATRAZINE:

Atrazine does not appear to be teratogenic. In mice, atrazine did not cause abnormalities in fetuses whose dams were given doses of 46.4 mg/kg/day during days 6 through 14 of gestation.

METOLACHLOR:

Metolachlor caused no birth defects in rats at maternal doses of 300 mg/kg/day administered during critical periods of gestation (organogenesis), although some delayed or abnormal development in offspring was seen at this dose. A decrease in food consumption was observed in the mother. In rabbits, a similar pattern of effects (no defects but some delayed development) was also seen at doses of up to 360 mg/kg/day. These data indicate that teratogenic and developmental effects in humans are unlikely at expected levels of exposure.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS: Atrazine can travel (seep or leach) through soil and can enter ground water which may be used as drinking water. Atrazine has been found in ground water. Users are advised not to apply atrazine to sand and loamy sand soils where the water table (ground water) is close to the surface and where these soils are very permeable, i.e., well-drained. Your local agricultural agencies can provide further information on the type of soil in your area and the location of ground water.
Metolachlor is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

ECOLOGICAL EFFECTS:

ATRAZINE: Atrazine is practically non-toxic to birds and bees and slightly toxic to fish and other aquatic life.

Bobwhite Quail LD50:	>2,000 mg/kg
Mallard Duck LD50:	>2,000 mg/kg

METOLACHLOR: Metolachlor is slightly to practically non-toxic to birds and bees and moderately toxic to fish.

Rainbow Trout 96-hour LC50:	3 mg/L
Bluegill Sunfish 96-hour LC50:	15 mg/L

Daphnia magna 48-hour EC50:	25 mg/L
Bobwhite Quail LD50:	>4,500 mg/kg
Mallard Duck LD50:	>2,000 mg/kg

ENVIRONMENTAL FATE (provided by EXTOXNET):

ATRAZINE: Atrazine is highly persistent in soil. Chemical hydrolysis, followed by degradation by soil microorganisms, accounts for most of the breakdown of atrazine. Hydrolysis is rapid in acidic or basic environments, but is slower at neutral pH's. Addition of organic material increases the rate of hydrolysis. Atrazine can persist for longer than 1 year under dry or cold conditions. Atrazine is moderately to highly mobile in soils with low clay or organic matter content. Because it does not adsorb strongly to soil particles and has a lengthy half-life (60 to >100 days), it has a high potential for groundwater contamination despite its moderate solubility in water. Atrazine is moderately soluble in water. Chemical hydrolysis followed by biodegradation, may be the most important route of disappearance from aquatic environments. Hydrolysis is rapid under acidic or basic conditions, but is slower at neutral pHs. Atrazine is not expected to strongly adsorb to sediments. Bioconcentration and volatilization of atrazine are not environmentally important.

METOLACHLOR: Metolachlor is moderately persistent in the soil environment. Half-lives of 15 to 70 days in different soils have been observed. Soils with significant soil water content may show more raid breakdown. Very little metolachlor volatilizes from the soil, and photodegradation will be a significant pathway for loss only in the top few inches. Breakdown is mainly dependent upon microbial activity, and thus will be temperature-dependent. Metolachlor is moderately well adsorbed by most soils. Soils with higher organic matter and clay content may adsorb it better. It is slightly soluble in water. Extensive leaching is reported to occur, especially in soils with low organic content. Metolachlor is highly persistent in water over a wide range of water acidity. Its half-life at 20° C is more than 200 days in highly acid waters and is 97 days in highly basic waters. Metolachlor is also relatively stable in water under natural sunlight.

13. DISPOSAL CONSIDERATIONS:

PESTICIDE DISPOSAL: Open dumping is prohibited. Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide is a violation of Federal law. Pesticide that cannot be used according to label instructions must be disposed of according to Federal, State or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office.

CONTAINER DISPOSAL: Dispose of product containers, waste containers, and residues according to label instructions and local, state, and federal health and environmental regulations.

14. TRANSPORT INFORMATION:

DOT CLASSIFICATION:
Not regulated

INTERNATIONAL TRANSPORTATION:
MO (vessel): Not regulated

IATA (air): Not regulated

15. REGULATORY INFORMATION:

SARA TITLE III CLASSIFIED:

Section 302	Not applicable
Section 311/312:	Acute Health Hazard
	Chronic Health Hazard
Section 313:	Atrazine (28.6%) CAS #: 1912-24-9
	1,2-propanediol (2.5%) CAS #: 57-55-6

CERCLA REPORTABLE QUANTITY (RQ): Not applicable

CA PROPOSITION 65: Not applicable

RCRA CLASSIFICATION: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

TSCA STATUS: The ingredients of this product are listed on the TSCA inventory or are exempt.

16. OTHER INFORMATION:

NFPA HAZARD RATINGS	**NFPA**	
HEALTH:	1	0 MINIMAL
FLAMMABILITY:	1	1 SLIGHT
REACTIVITY:	0	2 MODERATE
		3 HIGH
		4 SEVERE

MSDS DATE: 11-25-11.

The information contained herein is given in good faith and is believed to be correct, but no warrant, express or implied, is made.