Safety Data Sheet

I PRODUCT IDENTIFICATION

Product Name: BirkoSide 22
Synonyms: Peracetic Acid, Peroxyacetic Acid, PAA
Material Use: Antimicrobial Agent and Processing Aid
Supplier: Birko Corporation
9152 Yosemite Street
Henderson, CO 80640-8027
Contact Information: (303) 289-1090 or 1-800-525-0476
Emergency Number: CHEMTREC 1-800-424-9300

II HAZARD SUMMARY

GHS Class	*oxidizer*	*acute oral*	*acute skin*	*acute inhal.*	*skin corrosive*	*combustible*	*aquatic, acute*
(Category)	*(2)*	*(2)*	*(3)*	*(2)*	*(1)*	*(4)*	*(1)*
Signal Words	***DANGER***	***DANGER***	***DANGER***	***WARNING***	***DANGER***	***WARNING no Pictogram***	***WARNING***
Hazard Statements	*may intensify fire, oxidizer (H271)*	*fatal if swallowed (H300)*	*toxic in contact with skin (H311)*	*fatal if inhaled (H330)*	*causes severe skin burns & eye damage (H314)*	*combustible liquid (H227)*	*very toxic to aquatic life (H400)*

GHS Precautionary Statements for Labelling

P262 Do not get in eyes, on skin or on clothing.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear eye protection, protective gloves and clothing of butyl or "Viton".
P273, P391 Avoid release to the environment. Collect spillage.
P313 & P333 If skin irritation or rash occurs, get medical advice/attention.
P304 & P340 If inhaled remove person to fresh air and keep comfortable for breathing.
P305, P351, P338 If in eyes, rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

III COMPONENTS

	CAS NUMBER	%	TLV ppm / mg/m^3	LD_{50} (mg/kg) ORAL	LD_{50} (mg/kg) SKIN	LC_{50} (ppm) INHALATION
Hydrogen Peroxide	7722-84-1	7-10%	1 / 1.4	376	690	1430
Acetic Acid	64-19-7	40-55%	10 / 25	1200	1060	2810
Peracetic Acid	79-21-0	Varies*	.4 / 1.24 STEL	above 10	1730	150
Sulfuric Acid	7664-93-9	1-5%	0.2	2140	not known	160
Water	7732-18-5	balance	not toxic	90,000	not toxic	not toxic

NOTE: Other ingredients, present at below 1%, are not carcinogens, reproductive effectors, or sensitizers.

** Peracetic acid is created by the reaction of hydrogen peroxide & acetic acid; approx. 22-24% is present.*

IV FIRST AID

SKIN: Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION: Remove from contaminated area promptly. **CAUTION: Rescuer must not endanger himself!** If victim's breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION: Give plenty of water to dilute product. Do not induce vomiting (*NOTE below*). Keep victim quiet. If vomiting occurs, lower victim's head below the hips to prevent inhalation of vomited material. Seek medical help promptly.

NOTE: Corrosive substance: apply first aid immediately! *Inadvertent inhalation of vomited material may seriously damage the lungs. This danger is greater than the risk of poisoning through absorption of this product. Only empty the stomach under medical supervision, after installing an airway to protect the lungs.*

PLEASE ENSURE THAT THIS MSDS IS GIVEN TO, AND EXPLAINED TO PEOPLE USING THIS PRODUCT.

EMERGENCY INFORMATION: Call CHEMTREC (800) 424-9300

V FLAMMABILITY & FIREFIGHTING

Flash Point	>82°C / 180°F	
Autoignition Temperature	not known	*Normally, acetic acid solutions below 75% cannot burn; the presence*
Flammable Limits	not known	*of hydrogen peroxide, 25-45%, makes this product combustible.*
Combustion Products	carbon monoxide, nitrogen oxides, oxides of sulphur, oxides of phosphorous	
Firefighting Precautions	as for materials sustaining fire; firefighters must wear SCBA	
Static Discharge	cannot accumulate a static charge	

VI ACCIDENTAL RELEASE MEASURES

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	ventilate contaminated area; recover free liquid with corrosion-resistant pumps; absorb residue on an inert sorbent, sweep, shovel & store in closed containers for disposal

***NOTE:** If spill is extensive, and ventilation is inadequate, consider wearing an air-supplied respirator.*

VII STORAGE & HANDLING

Store and use in a cool environment, away from alkalis. Never cut, drill, weld or grind on or near this container, whether empty or full. *Always replace drum, pail or IBC cap prior to moving the container!*

Avoid generating or breathing product vapour or mist. If vapour or mist form in use install adequate ventilation to control airborne titre to regulated limits (*Part VIII, below*). If dealing with a spill, & ventilation is impractical, wear a suitable respirator with an acid gas cartridge. ***WARNING – corrosive material;*** avoid all contact with skin & wash work clothes often. An eye bath & safety shower must be available near the workplace.

VIII EXPOSURE CONTROL & PERSONAL PROTECTION

Hydrogen Peroxide:			
ACGIH TLV	1ppm / 1.4mg/m^3	ACGIH STEL	not listed
OSHA PEL	1ppm / 1.4mg/m^3	OSHA STEL	not listed
Acetic Acid:			
ACGIH TLV	10ppm / 25mg/m^3	ACGIH STEL	15ppm / 37mg/m^3
OSHA PEL	10ppm / 25mg/m^3	OSHA STEL	not listed
Sulfuric Acid:			
ACGIH TLV	0.2mg/m^3	ACGIH STEL	not listed
OSHA PEL	1mg/m^3	OSHA STEL	not listed
Cal OSHA PEL	0.1mg/m^3	Cal OSHA STEL	3mg/m^3

Ventilation	mechanical ventilation is required to control airborne concentrations to regulated limits; a respirator with acid gas cartridge should be available for escape purposes, in case of a spill or should ventilation fail (*always store respirator in airtight container ["Tupperware"] to maintain cartridge freshness*)
Hands	nitrile or neoprene, gauntlet-style gloves – *always confirm suitability with supplier*
Eyes	safety glasses with side shields or chemical goggles & a face shield – *always protect eyes!*
Clothing	impermeable (hands, above) apron, boots, hat & long sleeves; ***if splashing is possible consider wearing a one-piece impermeable overall with hood & a face shield***

IX PHYSICAL CHARACTERISTICS

Odour & Appearance	clear, colourless, mobile liquid with a strong acetic acid (vinegar) odour
Odour Threshold	0.07ppm
Vapour Pressure	approx. 20mmHg / 2.7kPa (20°C/ 68°F)
Evaporation Rate (*Butyl Acetate = 1*)	not known – *slightly slower than water*
Vapour Density (air = 1)	mixture – *all components, except water, are heavier than air*
Boiling Point	above 100°C / 212°F
Freezing Point	below -20°C / -4°F
Specific Gravity	1.10 to 1.125 (20/20°C)
Water Solubility	complete
Viscosity	not known – *thin mobile liquid*
pH	below 1 – *strongly acidic*

X REACTIVITY

Dangerously Reactive With	reducing agents, metal salts, alkalis, ***may ignite flammable substances & organic solvents***
Also Reactive With	corrodes ferrous and non-ferrous metals, zinc, aluminum
Stability	stable if not contaminated; will not polymerize
Decomposes in Presence of	heat, sunlight
Decomposition Products	acetic acid, steam, oxygen
Sensitive to Mechanical Impact	no

XI TOXICITY

i. *EFFECTS OF ACUTE EXPOSURE*

Skin Contact	corrosive to skin; will cause damage if not rinsed away promptly
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	liquid and vapour corrosive to eyes; will cause permanent damage if not rinsed promptly
Inhalation	severely irritating; may cause pulmonary oedema which ***may become life-threatening***
Ingestion	corrosive to mouth, throat & stomach; ***damage to digestive tract may be severe & life-threatening*** *Ingestion is not a route of industrial exposure.*
Calculated LD_{50} (oral)	39mg/kg (rat)
Calculated LD_{50} (skin)	818mg/kg (rabbit)
Calc. LC_{50} (inhalation)	470ppm (rat)

ii. *EFFECTS OF CHRONIC EXPOSURE*

General	prolonged or repeated exposure may cause skin cracking and dermatitis repeated absorption may damage liver and kidneys
Sensitising	not a sensitiser
Carcinogen/Tumorigen	not known to be a tumorigen or a carcinogen in humans or animals
Reproductive Effect	no known effect on humans or animals
Mutagen	not known to be a mutagen or teratogen in humans or animals
Synergistic With	not known

XII ENVIRONMENTAL INFORMATION

Bioaccumulation	this product is not a bioaccumulator
Biodegradation	once diluted to below bacteriostatic concentration, all components biodegrade readily & rapidly
Abiotic Degradation	hydrolyses rapidly at pH 7-9; its estimated ½-life in water 1 day; at pH 4, 7 days
Mobility in soil, water	water soluble; moves rapidly in soil & water; rapid hydrolysis & biodegradation is likely to prevent soil & water contamination
Aquatic Toxicity	***Acetic Acid:***
LC_{50} (Fish, 96 hr)	75mg/litre (Lepomis macrochirus), 251mg/litre (Gambusia affinis, neutralised to pH6.9-8.7) 88mg/litre (Pimephelas promelas), 410mg/litre (Leuciscus idus)
LC_{50} (Crustacea, 48hr)	6000mg/litre (Daphnia magna), 42mg/litre (Artemia salina)
EC_{100} (Algae, 96hr)	720mg/litre (Euglena gracilis), 63mg/litre (Chlamydomonas dysomos)
LC_{50} (Bacteria)	11mg/litre (Photobacterium phosphoreum)
Aquatic Toxicity	***Hydrogen Peroxide:***
LC_{50} (Fish, 96 hr)	16mg/litre (Pimephelas promelas), 37mg/litre (Ictalurus punctatus)
LC_{50} (Crustacea 48hr)	7.7mg/litre (Daphnia magna)
EC_{50} (Algæ, 72hr)	10mg/litre (Anabena species, 24hr), 2.5mg/litre (Chlorella vulgaris, 72hr), 27.5 – 43mg/litre (Scenedesmus quadricauda, 240hr) & others
LC_{50} (Bacteria)	30mg/litre (Escherichia coli, 2hr) & others
Aquatic Toxicity	***Peracetic Acid:***
LC_{50} (Fish, 96hr)	11mg/litre (Pleuronectes platessa), 1-2mg/litre (Oncorhynchus mykiss)
EC_{50} (Crustacea, 48hr)	0.5-1.1mg/litre (Daphnia magna)
EC_{50} (Algae)	0.18mg/litre (Selenastrum Capricornutum)
EC_{50} (Bacteria)	5.1mg/litre (activated sludge)

XIII DISPOSAL / CONTAINERS

Waste Disposal	**do not flush to sewer**; may be incinerated in approved facility with flue gas monitoring & scrubbing, mix with a suitable flammable waste before incineration; may be landfilled if local regulations permit
Containers	**Drums** should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use. **Pails** must be vented and thoroughly dried prior to crushing and recycling. **IBCs** (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5 years). Steel containers must be inspected, pressure tested & recertified every 5 years. ***Warning: never cut, drill, weld or grind on or near this container, even if empty.***

XIV TRANSPORTATION CLASSIFICATION

USA 49 CFR & Canada TDG

Product Identification Number	**UN – 3109**
Shipping Name	**organic peroxide type F, liquid (peroxyacetic acid, type F, stabilized (<43%))**
Classification	**Class 5.2 (8)**
Reportable Quantities:	***acetic acid – 5000lbs***
Marine Pollution	***not a marine pollutant***

EMERGENCY INFORMATION

In the U.S.A.	***Call CHEMTREC***	***(800) 424-9300***
In Canada	***Call CANUTEC (collect)***	***(613) 996-6666***

PLEASE ENSURE THAT THIS MSDS IS GIVEN TO, AND EXPLAINED TO PEOPLE USING THIS PRODUCT.

XV REGULATIONS

Canada DSL	**on inventory**
U.S.A. TSCA	**on inventory**
Europe EINECS	**on inventory**

XVI OTHER INFORMATION

Date of Preparation: **June 2018**
Prepared for Birko Corporation

Resources: **CHEMINFO** (Canadian Centre for Occupational Health & Safety), **Hazardous Substances Data Bank** (US National Library of Science), **IUCLID Datasheet** (European Union), **ESIS European Chemical Substances Information System** (European Union), **OSHA Database** (US Dept. of Labor)