SAFETY DATA SHEET

Section 1 - Chemical Product and Company Information

PANNIER CORPORATION
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Product Name: AAK-140 Orange, Acetone Ink
Product Use: Ink
Not recommended for: Consumer Use

Section 2 - Hazards Identification

GHS Ratings

Flammable liquid	2	Flash point < 23°C and initial boiling point > 35°C (95°F)
Serious eye damage/eye irritation	2A	Eye irritant: Subcategory 2A, Reversible in 21 days
Skin sensitization	1	Skin sensitizer
Carcinogenicity	1B	Presumed Human Carcinogen, based on demonstrated animal carcinogenicity
Reproductive toxicity	1B	Presumed, Based on experimental animals

GHS Hazards

H225	Highly flammable liquid and vapor
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H350	May cause cancer.
H360	May damage fertility or the unborn child.

GHS Precautions

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking
P233	Keep container tightly closed
P240	Ground/bond container and receiving equipment
P241	Use explosion-proof electrical/ventilating/light/manufacturer/equipment
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge
P261	Avoid breathing dust/fume/gas/mist/vapors/spray
P264	Wash contact area thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace
P280	Wear protective gloves/protective clothing/eye protection/face protection
P281	Use personal protective equipment as required
P321	Specific treatment (see supplemental first aid instruction on this label)
P363	Wash contaminated clothing before reuse
P302+P352	IF ON SKIN: wash with plenty of water.
P303+P361+P353	IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P333+P313	IF SKIN irritation or rash occurs: Get medical advice/attention.

P337+P313	IF eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use ... to extinguish.
P405	Store locked up
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Signal Word: Danger

Acute Toxicity

N/A

Conditions Aggravated

N/A

Chronic Effects

N/A

Section 3 - Composition / Information on Ingredients

Chemical Name	CAS number	Weight Concentration %
Acetone	67-64-1	60.00% - 70.00%
1-Methoxy-2-propyl acetate	108-65-6	5.00% - 10.00%
Isopropyl alcohol	67-63-0	4.00%
Cellulose Nitrate	9004-70-0	1.00% - 5.00%
Methyl ethyl ketone	78-93-3	3.00%
Cyclohexanone	108-94-1	1.00% - 5.00%
Titanium (IV) dioxide	13463-67-7	1.00% - 5.00%
1-Methyl-2-pyrrolidone	872-50-4	1.00%
Dibutyl phthalate	84-74-2	0.70%
2-Butanone, oxime	96-29-7	0.10%

Section 4 - First Aid Measures

INHALATION - Move affected person to fresh air, rest in a half upright position, and loosen clothing . If breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Seek medical advice after significant exposure.

EYE CONTACT - Flush with large amounts of water for at least 15 minutes . Lift eyelids occasionally. Get prompt medical attention.

SKIN - Wash thoroughly with soap and water immediately. Remove all contaminated clothing immediately. Seek medical advice if irritation persists.

INGESTION - Seek medical advice. The decision to induce vomiting or not must be made by a physician after careful consideration of all materials ingested. Risk of aspiration into lungs.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media

Carbon Dioxide---Dry Chemical---Foam---Water Fog
Use water for cooling material stored in vicinity of fire.

Explosion Hazards

Vapors are heavier than air and may travel along the ground to an ignition source some distance from material handling point. Ignition sources include pilot lights, smoking, heaters, electric motors, sparks from electrical switches and static discharges.

CAUTION: Never use cutting torch on empty containers! Residual solvent vapor in empty container may explode. Application to hot surfaces requires special precautions. During emergency conditions, overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain Medical Attention.

Hazardous Combustion Products

N/A

Recommended Fire Equipment

Use self-contained breathing apparatus with a full-face piece operated in a pressure-demand or other positive pressure mode. Wear protective clothing.

Section 6 - Accidental Release Measures

Non-emergency personnel: Evacuate and isolate the area and prevent access. Remove ignition sources. No flares, smoking or flames in hazard area. Notify management. Avoid breathing vapor or mist and put on protective equipment. Control source of the leak. Ventilate.

Emergency responders: See section 8 for any specialized clothing recommendations. Also reference the information for non-emergency personnel

Environmental precautions: Prevent further leakage or spillage if possible. Do not allow the material to spread to drains, sewers, water supplies, or soil.

Small Spill: Stop leak if possible and move containers from the spill area. Water soluble: dilute with water and mop up. Water Insoluble: Cover spill area with a suitable absorbent inert material (Kitty Litter, Oil-Dri, etc.) and dispose of in an appropriate metal waste container. Dispose of material through a licensed waste disposal contractor.

Large Spill: Stop leak if possible and move containers from the spill area. Approach release from upwind. Contain spillage and with non-combustible absorbent material and place in appropriate disposal container according to local regulations. Dispose of material through a licensed waste disposal contractor. Report spill to appropriate governing agencies if applicable.

Section 7 - Handling and Storage

Precautions for Safe Handling

Keep away from food, drink and heat. Keep away from sources of ignition. No smoking. Do not breathe vapor. Avoid contact with skin and eyes. Never use pressure to empty. Take precautionary measures against static discharges .

Storage temperature-

Minimum:	do not freeze
Maximum:	40°C (104°F)

Storage Period- See technical data sheet.

Section 8 - Exposure Controls / Personal Protection

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Acetone 67-64-1	1000 ppm TWA; 2400 mg/m3 TWA	500 ppm STEL 250 ppm TWA	NIOSH: 250 ppm TWA; 590 mg/m3 TWA
1-Methoxy-2-propyl acetate 108-65-6	N/A	N/A	Workplace Environmental Exposure Levels (WEEL) - TWA: 50 ppm
Isopropyl alcohol 67-63-0	400 ppm TWA; 980 mg/m3 TWA	400 ppm STEL 200 ppm TWA	NIOSH: 400 ppm TWA; 980 mg/m3 TWA 500 ppm STEL; 1225 mg/m3 STEL
Cellulose Nitrate 9004-70-0	N/A	N/A	N/A
Methyl ethyl ketone 78-93-3	200 ppm TWA; 590 mg/m3 TWA	300 ppm STEL 200 ppm TWA	NIOSH: 200 ppm TWA; 590 mg/m3 TWA 300 ppm STEL; 885 mg/m3 STEL
Cyclohexanone 108-94-1	50 ppm TWA; 200 mg/m3 TWA	50 ppm STEL 20 ppm TWA	NIOSH: 25 ppm TWA; 100 mg/m3 TWA
Titanium (IV) dioxide 13463-67-7	15 mg/m3 TWA (total dust)	10 mg/m3 TWA	N/A
1-Methyl-2-pyrrolidone 872-50-4	Not Established	Not Established	Not Established
Dibutyl phthalate 84-74-2	5 mg/m3 TWA	5 mg/m3 TWA	NIOSH: 5 mg/m3 TWA
2-Butanone, oxime 96-29-7	Not Established	Not Established	Not Established

Engineering Controls: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation, or other controls to keep air containment concentration below current applicable OSHA permissible exposure limit or ACGIH TLV limit, and volatiles below lower explosive limit. Heavy solvent vapors should be removed from the lower levels of area, and all ignition sources (non-explosion proof equipment) should be eliminated if flammable mixtures will be encountered. Remove decomposition products formed during welding or flame cutting of surfaces coated with this product. For baking finishes - vent vapors emitted on heating.

Environmental Controls: Emissions should comply with environmental protection legislation.

Individual Protection Measures:

Hygiene measures- Wash hands, forearms, etc. after handling chemical products, before eating, smoking, and using the lavatory, and the end of the work period. Use appropriate techniques when removing potentially contaminated

clothing and wash before reusing. Know the locations of eyewash and safety showers.

Respiratory Protection- Provide adequate ventilation to keep exposure below permissible limits. If a risk assessment deems necessary, operator is to use a properly fitted, air purifying or supplied air respirator. Respirator selection must be based on known/ anticipated exposure levels, the hazards of the product, and the safe working limits of the respirator.

Skin and Body Protection- Wear chemical resistant gloves (nitrile) and paint suits when necessary, based on risk assessment. The most suitable glove must be chosen in consultation with the gloves supplier who can inform about the breakthrough time of the glove material. PPE for the body should be selected based on the risks of the task being performed and approved by a specialist. Appropriate footwear should also be approved.

Eye/Face Protection- Wear approved chemical safety goggles where exposure to vapor or contact with eyes is possible. Eye wash stations should also be made available. If inhalation hazard exists, a risk assessment will determine if a full-face respirator may be required

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties:

Viscosity: Not determined	**pH:** N/A
% Weight Solids 18.16	**VOC Wt/Gal (wet)** 6.15
U.S. VOC Wt/Gal (wet) 1.27	**Specific Gravity (SG)** 0.902
Odor: Acetone	**Odor Threshold:** Not determined
Color: Orange	**Boiling Point:** 56°C
Flash Point: 1°F,-17°C	**Evaporation Rate (nBuAc=1):** Not determined
Vapor Pressure: N/A	**Vapor Density:** N/A
Freezing Point: Not determined	

Section 10 - Stability and Reactivity

The following materials should be avoided in contact with the mixture

Oxidizing agents'
Strong acids
Strong bases
Reducing agents

Hazardous decomposition products

Carbon oxides
Titanium/titanium oxides

Section 11 - Toxicological Information

Mixture Toxicity

Inhalation Toxicity LC50: 77mg/L

LC_{50} and LD_{50} toxicity for this product are merely estimates and have yet to be determined. For individual component ecotoxicity, please refer to Section 12.

Possible Routes of Entry

Inhalation Skin Contact Eye Contact Ingestion

Potential Target Organs

Eyes Kidneys Liver Lungs Central Nervous System Skin GI Tract Respiratory System

Effects of Overexposure

Not Available

The following components are possible carcinogens

***Materials labeled a carcinogen in dust form are supplied in solution, thus eliminating the hazard.**

CAS Number	Description	% Weight	Carcinogen Rating
96-29-7	2-Butanone, oxime	0.1%	2-Butanone, oxime: EU REACH: Present (shall apply from March 1, 2022)
13463-67-7	Titanium (IV) dioxide	1% - 5%	Titanium (IV) dioxide: (*dust) NIOSH: potential occupational carcinogen IARC: Possible human carcinogen OSHA: listed

Section 12 - Ecological Information

Mixture Ecotoxicity

Toxicity- Do not release into environment. May cause long term adverse effects.
Persistence and degradability- N/A
Bioaccumulative potential- N/A
Mobility in Soil- N/A

Component Ecotoxicity

Acetone	96 Hr LC50 Oncorhynchus mykiss: 4.74 - 6.33 mL/L; 96 Hr LC50 Pimephales promelas: 6210 - 8120 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 8300 mg/L 48 Hr EC50 Daphnia magna: 10294 - 17704 mg/L [Static]; 48 Hr EC50 Daphnia magna: 12600 - 12700 mg/L
1-Methoxy-2-propyl acetate	96 Hr LC50 Pimephales promelas: 161 mg/L [static] 48 Hr EC50 Daphnia magna: >500 mg/L
Isopropyl alcohol	96 Hr LC50 Pimephales promelas: 9640 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 11130 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: >1400000 µg/L 48 Hr EC50 Daphnia magna: 13299 mg/L 96 Hr EC50 Desmodesmus subspicatus: >1000 mg/L; 72 Hr EC50 Desmodesmus subspicatus: >1000 mg/L
Methyl ethyl ketone	96 Hr LC50 Pimephales promelas: 3130 - 3320 mg/L [flow-through] 48 Hr EC50 Daphnia magna: >520 mg/L; 48 Hr EC50 Daphnia magna: 5091 mg/L; 48 Hr EC50 Daphnia magna: 4025 - 6440 mg/L [Static]
Cyclohexanone	96 Hr LC50 Pimephales promelas: 481 - 578 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 8.9 mg/L
1-Methyl-2-pyrrolidone	96 Hr LC50 Lepomis macrochirus: 832 mg/L [static]; 96 Hr LC50 Pimephales promelas: 1072 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 1400 mg/L [static] 48 Hr EC50 Daphnia magna: 4897 mg/L 72 Hr EC50 Desmodesmus subspicatus: >500 mg/L

Dibutyl phthalate	LC50 96 h Pimephales promelas 0.71 - 1.2 mg/L (IUCLID); LC50 96 h Pimephales promelas 0.31 - 5.45 mg/L (EPA); LC50 96 h Oncorhynchus mykiss >1.24 mg/L (EPA); LC50 96 h Oncorhynchus mykiss 1.24 - 5.3 mg/L (EPA); LC50 96 h Lepomis macrochirus 1.38 - 1.74 mg/L (EPA); LC50 96 h Lepomis macrochirus 0.42 - 1.28 mg/L (EPA) EC50 48 h Daphnia magna 2.99 mg/L [Static] (EPA); EC50 48 h Daphnia magna 3.4 mg/L (IUCLID) EC50 72 h Desmodesmus subspicatus 1.2 mg/L (IUCLID); EC50 96 h Pseudokirchneriella subcapitata 0.4 mg/L (EPA)
2-Butanone, oxime	LC50 96 h Pimephales promelas 777 - 914 mg/L (EPA); LC50 96 h Poecilia reticulata 760 mg/L (IUCLID) EC50 48 h Daphnia magna 750 mg/L (IUCLID) EC50 72 h Desmodesmus subspicatus 83 mg/L (IUCLID)

Section 13 - Disposal Considerations

Dispose of in accordance with federal, state and local regulations. Controlled incineration is recommended for disposal of unused product. Prevent contamination of soil, drains and surface waters. Dispose of large containers to a licensed reconditioner. Dispose of small containers in compliance with local regulations.

Section 14 - Transport Information

Agency	Proper Shipping Name	UN Number	Packing Group	Hazard Class
DOT	PRINTING INK	UN1210	II	3
IATA	PRINTING INK Pkg Instr: Y341/353/364	UN1210	II	3
IMDG	PRINTING INK EmS: F-E, S-D	UN1210	II	3

Section 15 - Regulatory Information

The following chemicals are listed in California Title 8 CCR Sections as Hazardous Substances
108-94-1 Cyclohexanone
78-93-3 Methyl ethyl ketone
67-63-0 Isopropyl alcohol
67-64-1 Acetone

The following chemicals are listed in California Title 8 CCR Sections 5200-5220 as Carcinogens .
N/A

The following chemicals are listed in California Title 8 CCR Section 5203 as Carcinogens
N/A

The following chemicals are listed in California Title 8 CCR Section 5209 as Carcinogens .
N/A

The following chemicals are listed in the EU-Substances of Very High Concern (2008/67/ED) (SVHC):
872-50-4 1-Methyl-2-pyrrolidone Reproductive Toxins

The following chemicals are listed in the EU-Restriction of the use of certain Hazardous Substances (2011/65/EU) (RoHS):
N/A

The following chemicals are included in the Global Automotive Declarable Substance List (GADSL)
9004-70-0 Cellulose Nitrate

The following substances are required for notification by the Japanese Enforcement Order of the Industrial Safety and Health Law (ISHL):

13463-67-7 Titanium (IV) dioxide
108-94-1 Cyclohexanone
78-93-3 Methyl ethyl ketone
9004-70-0 Cellulose Nitrate
67-63-0 Isopropyl alcohol
108-65-6 1-Methoxy-2-propyl acetate
67-64-1 Acetone

The following chemicals are listed on the Massachusetts Right-to-Know Hazardous Substances List.

13463-67-7 Titanium (IV) dioxide
108-94-1 Cyclohexanone
78-93-3 Methyl ethyl ketone
9004-70-0 Cellulose Nitrate
67-63-0 Isopropyl alcohol
67-64-1 Acetone

The following chemicals are listed on the New Jersey Right-to-Know Hazardous Substances List.

13463-67-7 Titanium (IV) dioxide
108-94-1 Cyclohexanone
78-93-3 Methyl ethyl ketone
9004-70-0 Cellulose Nitrate
67-63-0 Isopropyl alcohol
67-64-1 Acetone

The following chemicals are listed on the Pennsylvania Right-to-Know Hazardous Substances List.

13463-67-7 Titanium (IV) dioxide
108-94-1 Cyclohexanone
78-93-3 Methyl ethyl ketone
9004-70-0 Cellulose Nitrate
67-63-0 Isopropyl alcohol
67-64-1 Acetone

The following chemicals are listed by the State of California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

872-50-4 1-Methyl-2-pyrrolidone 1% Carcinogen

Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) requires certain facilities manufacturing, processing, or otherwise using listed toxic chemicals to report their environmental releases of such chemicals annually. The following chemicals are listed:

N/A

The following chemicals are listed in EPCRA (SARA) Section 313: Persistent, Bioaccumulative, and Toxic Chemicals (PBT)

N/A

The following chemicals are listed under EPCRA (SARA) Section 313: Toxic Release Inventory (TRI)

N/A

Under Section 12(b) of the Toxic Substances Control Act (TSCA), exporters may need to notify the U .S. Environmental Protection Agency if they export or intend to export a product containing a chemical substance that is present on this list. The following substances are contained within this material:

N/A

The following chemicals are listed as a *Hazardous Air Pollutant* under listed under the U.S. CAA (Clean Air Act)

N/A

Country	Regulation	All Components Listed
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Canadian Domestic Substances List (DSL)	Yes
Canada	Canadian Non-Domestic Substances List (NSDL)	No
China	Inventory of Existing Chemical Substances Produced or Imported in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Europe	REACH Registered or Pre-Registered Substances and Intermediates	Yes
Japan	Japanese Inventory of Existing and New Chemical Substances (ENCS)	Yes
Japan	Japan Inventory of Industrial Safety and Health Law Substances (ISHL)	No
Korea	Korean Existing Chemical Inventory (KECI)	Yes
New Zealand	New Zealand Inventory of Chemicals (NZIoC)	Yes
Philippines	Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Yes
USA	Toxic Substances and Control Act (TSCA)	Yes

EU Risk Phrases

Not Available

Safety Phrase

Not Available

Section 16 - Other Information

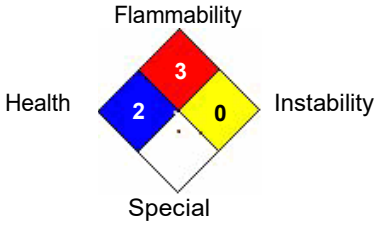
NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard . A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria . The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders . The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

Hazardous Material Information System (HMIS)

HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	G

HMIS & NFPA Hazard Rating Legend
*** = Chronic Health Hazard**
0 = INSIGNIFICANT
1 = SLIGHT
2 = MODERATE
3 = HIGH

National Fire Protection Association (NFPA)



The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

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