SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: GRADE 550 OPAQUE WHITE,
PRODUCT USE: Printing ink and/or coating
PRODUCT COLOR: White
Not recommended for: Consumer Use

Manufacturer/Supplier:
PANNIER CORPORATION
207 SANDUSKY STREET
PITTSBURGH, PA 15212-5823 U.S.A.
24 Hr Emergency Telephone Number: INFOTRAC 1-800-535-5053

SECTION 2 - HAZARDS IDENTIFICATION

Classification: No need for classification according to GHS criteria for this product.
Label Elements: The product does not require a hazard warning label in accordance with GHS criteria. Hazards not otherwise classified: No specific dangers known, if the regulations/notes for storage and handling are considered.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium hydroxide</td>
<td>1336-21-6</td>
<td>&gt; 0.1 - &lt;1.0%</td>
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</table>

The specific identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 - FIRST AID MEASURES

Inhalation: If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention.
Skin contact: Promptly flush skin with water until all chemical is removed.
Eye contact: Immediately flush eyes with large amounts of water for at least 15 minutes, lifting eyelids occasionally to facilitate irrigation.
Ingestion: Not considered dangerous.

SECTION 5 - FIRE FIGHTING MEASURES

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Specific hazards arising from the chemical: When exposed to fire, burning organic pigment products may evolve noxious, toxic gases, carbon monoxide, carbon dioxide, nitrous oxide, or hydrogen chloride depending upon pigment type used in the dispersion. All water must be driven off first in order for this to occur.
Special protective equipment and precautions for firefighters: Wear self-contained breathing apparatus for firefighting if necessary. The wet ink is not flammable. The bulk of the ink will not burn. If heated to dryness, the remaining organic polymers and pigments, although difficult to ignite, will burn as a class IIIB fire. It is recommended that containers be tightly closed and isolated from heat, electrical equipment and flame. A closed container could possibly explode when exposed to extreme heat.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures: Surfaces may be slippery. Avoid breathing vapors, mist or gas. For personal protection see Section 8.
Environmental precautions: No special environmental precautions required. Avoid discharge into
SAFETY DATA SHEET

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Methods and materials for containment and cleaning up:
Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling: Wash thoroughly after handling
Conditions for safe storage: Keep from freezing. Do not store in excessive heat > 100 F. Store out of direct sunlight. Prevent contact with storm water. Store in closed containers. Stir before use.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with occupational exposure limits
Ammonium hydroxide OSHA PEL PEL 50 ppm 35mg/m3 ; STEL value 35 ppm 27 mg/m3 ACGIH TLV TWA value 25 ppm ; STEL value 35 ppm

Individual protection measures, such as personal protective equipment:
Respiratory protection: Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Eye protection: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Other: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Milky white
Physical State: Liquid
Odor: Faint; Ammonia like
Odor threshold: Not established
Melting/Freezing point: 32°F
Flash point: NA
Flammability: Not flammable
Flammable limits: LEL: Not applicable
Vapor pressure: Not applicable
Relative density (lb/gal): 8.4 – 9.0
Partition coefficient: n-octanol/water: Unknown
Auto-ignition temperature: Not applicable
Decomposition temperature: Not applicable
pH: 8.6 – 9.4
Boiling point: 212°F
Evaporation rate: <1
UEL: Not applicable
Vapor density: Not applicable
Solubility (water): Dispersible
Viscosity (cps): 400 - 4000
SECTION 10 - STABILITY AND REACTIVITY
Reactivity: Non-reactive
Chemical stability: Stable
Possibility of hazardous reactions: None
Conditions to avoid: Excessive heat and freezing.
Incompatible materials: Strong oxidizers such as chlorates, bromates, nitrates
Hazardous decomposition products: None

SECTION 11 - TOXICOLOGICAL INFORMATION
Acute effects of exposure:
Inhalation: None.
Ingestion: May cause slight irritation but is not expected to produce adverse effects. Not intended for ingestion
Skin contact: May be irritating.
Eye contact: May be irritating.
Chronic effects: None
Carcinogenicity: Not known to be carcinogenic

SECTION 12 - ECOLOGICAL INFORMATION
Ecological testing has not been performed on this product.
Dispose of contents and container properly.
Do not dump.
Contents will cause discoloration in soil and water.

SECTION 13 - DISPOSAL CONSIDERATIONS
Dispose of contents properly.
Dispose of containers properly.
Containers can be re-used or recycled.
Free IBC disposal call: 1-888-SCHUETZ or 1-888-724-8389
Product is not a hazardous waste under US or Canadian regulation.

SECTION 14 - TRANSPORT INFORMATION
UN number: Not Classified
US DOT: Not Classified
UN proper shipping name: Not Classified
Transport hazard classes(es): Not Classified
Packing group, if applicable: Not Classified

SECTION 15 - REGULATORY INFORMATION
CERCLA Reportable Quantity:
This material does not contain any components with a CERCLA RQ.
SARA Hazard Category (311/312): Not hazardous
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313
EPA TSCA Inventory: All components of this product are either listed on the TSCA Inventory or are not subject to the notification requirements per 40 CFR 720 30(h).
California Prop 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.
NFPA Hazard Codes:
Health: 1 Fire 0 Reactivity 0 Special
HMIS III rating:
Health 1 Flammability 0 Physical Hazard 0
SECTION 16 - OTHER INFORMATION
DISCLAIMER OF LIABILITY
As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of the material described in this MSDS. Information contained herein is given in good faith and believed to be true and accurate, but all statements or suggestions are made without warranty, expressed or implied, regarding the accuracy of the information, the hazards connected with the use of the material, or results to be obtained from the use thereof. All of the listed ingredients in this product that are considered to present a health hazard as defined in Appendix A of the OSHA “Hazard Communication” standard (29CFR 1910.1200) as listed in Section II. All of the information given, including ingredient identification, CAS Number, and quantity, is proprietary information, which has been provided in order to meet the objective of the “Hazard Communication” standard. Data provided here are typical and not intended for use as product specifications. This formulation information is confidential, and only to be disclosed in accordance with Federal and State safety and health regulations. Permission to disclose any ingredient information for any other purpose is neither given nor implied.