FUNCTIONAL PRODUCTS INC.

EFFECTIVE: 12/10/09
SUPERSEDES: NEW

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>FUNCTIONAL AO-520</th>
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<tbody>
<tr>
<td>CHEMICAL FAMILY</td>
<td>Antioxidant (food grade)</td>
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<tr>
<td>PRODUCT USE</td>
<td>Antioxidant for Vegetable and Mineral oils</td>
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<tr>
<td>CAS REGISTRY NUMBER</td>
<td>Proprietary</td>
</tr>
<tr>
<td>REVISION DATE</td>
<td>December 10, 2009</td>
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MANUFACTURER / SUPPLIER

FUNCTIONAL PRODUCTS INC.
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Macedonia, Ohio 44056, USA
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Fax: 330-963-3322

2. COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE/ PREPARATION % (w/w) CAS #
No hazardous ingredients per current OSHA regulations

3. HAZARDS IDENTIFICATION

EYES: May cause irritation.
SKIN: May cause irritation and allergic skin reaction.
INGESTION: Get medical advice.
INHALATION: Treat symptomatically, move to fresh air. Get medical attention if symptoms persist.

POWDER MAY FORM AN EXPLOSIVE DUST-AIR MIXTURE

4. FIRST-AID MEASURES

INHALATION: If inhaled, remove to fresh air. Get medical attention. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

INGESTION: Immediately get medical attention. Do not induce vomiting. If vomiting occurs, keep head below hips to avoid breathing the products into the lungs.

SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or an allergic skin reaction develops.

EYE CONTACT: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
5. **FIRE-FIGHTING MEASURES**

HAZARDOUS COMBUSTION PRODUCTS: Carbon dioxide, carbon monoxide.

EXPLOSION HAZARDS: Powdered material may form explosive dust-air mixtures.

SENSIVITY TO STATIC: Material may accumulate a static charge which could act as an ignition source.

UPPER FLAMMABLE LIMIT: Not determined.

LOWER FLAMMABLE LIMIT: Not determined.

EXTINGUISHING MEDIA: In case of fire, use water, dry chemical or CO$_2$.

FIRE-FIGHTING PROCEDURES: Recommended wearing self-contained breathing apparatus and full turnout gear.

6. **ACCIDENTAL RELEASE MEASURES**

PERSONAL PRECAUTIONS: Appropriate personal protective equipment must be worn. Keep unnecessary personnel away. Ventilate area and avoid breathing dust.

ENVIRONMENTAL PRECAUTIONS AND CLEAN UP METHODS: Spills should be contained, absorbed and containerized for disposal in accord with local, state and federal regulations. Prevent entry to sewers and water-way.

7. **HANDLING AND STORAGE**

HANDLING: Avoid contact with eyes and skin. Wear appropriate gloves. Wash thoroughly after handling. Avoid breathing vapor or dust. Keep away from heat, sparks and flames.

STORAGE: Keep container tightly closed, in cool, well-ventilated and dry area. Protect from contamination.

8. **EXPOSURE CONTROLS / PERSONAL PROTECTION**

VENTILATION: Use with adequate ventilation to control dust and fumes.

HANDS: Use chemical resistant, impervious gloves.

EYES: Use safety glasses with side shields, goggles or face mask.

CLOTHING: Long sleeve shirt is recommended.

RESPIRATORY SYSTEM: Use appropriate respiratory protection if there is any potential for uncontrolled release or exposure.
9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid.
COLOR: Light tan.
ODOR: slight.
SPECIFIC GRAVITY: 1.05 (20 °C).
SOLUBILITY: slight solubility in water.
FLASH POINT: 171 °C (COC)
AUTOIGNITION TEMPERATURE: 457 °C.
DUST EXPLOSION CLASS: St3 – very strong explosion

10. STABILITY AND REACTIVITY

STABILITY: The product is stable.
INCOMPATIBILITY: Strong oxidizing agents.
CONDITIONS TO AVOID: Dust formation and excessive temperature.
HAZARDOUS DECOMPOSITION: CO, CO₂, organic oxidation products.
POLYMERIZATION: Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

SKIN SENSITIZATION: Based on current information for humans, slight sensitization associated with this product.
EYE IRRITATION (rabbit): Strong
DERMAL LD-50: (guinea pig) > 1,000 mg/kg
ORAL LD-50: (female rat) 1,131 mg/kg
ORAL LD-50: (male rat) 951 mg/kg

12. ECOLOGICAL INFORMATION

OXYGEN DEMAND DATA:
   BOD-5: 70 mg/g
   BOD-20: 2,000 mg/g
   COD: 2,200 mg/g
   THBOD: 2,450 mg/g
ACUTE AQUATIC EFFECTS DATA:
   96 hr LC-50 (fathead minnow): 0.6 mg/l
   96 hr LC-50 (daphnid): 3.2 mg/l
   96 hr LC-50 (flatworm): 3.2 mg/l
   96 hr LC-50 (ramshorn snail): 32 mg/l

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. TRANSPORTATION INFORMATION
15. **REGULATORY INFORMATION**

### WHMIS STATUS (Canada):
exemption – food additive

### SARA 311-312 HAZ CLASS.
Immediate (acute) health hazard

### U.S. TSCA INVENTORY
Yes

### SARA Section 313
No; this material is regulated by the FDA. This product is permitted under existing FDA regulations for use as a direct (or an indirect) food additive. **Carcinogenicity Classification:** none

### JAPAN
Listed on MITI inventory.

### AUSTRALIA
Listed on AICS / NICNAS inventory.

### EUROPE
Listed on EINECS inventory.

### CANADA
Listed on DSL inventory.

### KOREA
In compliance in Korea (ECL).

### PHILIPPINES
In compliance with the Philippines Inventory (PICCS).

### CHINA
Listed on IECSC Inventory.

16. **OTHER INFORMATION**

### NFPA CODE
Health: 2    Fire: 1    Reactivity: 0

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