Common Name: ALUMNIA/ZIRCONIA RESIN GRINDING WHEEL, NZRESIN001 OUTBOUND
Manufacturer: SAINT-GOBAIN ABRASIVES

Grainger Item Number(s): 4DB53, 4DB54, 4DB55, 4DB56, 4DB57, 4DB58, 4DB59, 4DB60
Manufacturer Model Number(s): NZRESIN001

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: ALUMNIA/ZIRCONIA RESIN GRINDING WHEEL

TRADE NAME: NORZON

MANUFACTURER(4):

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>SUBSTANCE DESCRIPTION</th>
<th>PERCENT</th>
<th>CAS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINUM OXIDE, NON-FIBROUS</td>
<td>40.000 - 60.000</td>
<td>1344-28-1</td>
</tr>
<tr>
<td>CURED PHENOL FORMALDEHYDE RESIN</td>
<td>3.000 - 6.000</td>
<td>9003-35-4</td>
</tr>
<tr>
<td>FIBERGLASS</td>
<td>1.000 - 10.000</td>
<td>65997-17-3</td>
</tr>
<tr>
<td>IRON DISULFIDE</td>
<td>1.000 - 10.000</td>
<td>12068-85-8</td>
</tr>
<tr>
<td>ZIRCONIUM OXIDE</td>
<td>30.000 - 50.000</td>
<td>1314-23-4</td>
</tr>
<tr>
<td>OTHER: NOT APPLICABLE</td>
<td></td>
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</tr>
</tbody>
</table>

SECTION 3. HAZARDS IDENTIFICATION

INHALATION ACUTE EXPOSURE EFFECTS:
DUST MAY BE SLIGHTLY IRRITATING TO EYES AND RESPIRATORY TRACT AT HIGH CONCENTRATIONS.

INHALATION CHRONIC EXPOSURE EFFECTS:

CHRONIC:
MAY AFFECT BREATHING CAPACITY.
FOR PRODUCTS CONTAINING PHENOL/FORMALDEHYDE RESIN, DUST GENERATED FROM INTENDED USE MAY CONTAIN TRACE AMOUNTS OF PHENOL AND FORMALDEHYDE WHICH UNDER EXCESSIVE EXPOSURE MAY CAUSE SKIN SENSITIZATION AND AIRWAY OBSTRUCTION.

FOR PRODUCTS CONTAINING INORGANIC FLUORIDES, EXCESSIVE EXPOSURE TO INORGANIC FLUORIDES HAVE BEEN SHOWN TO INCREASE BONE DENSITY.

EYE CONTACT ACUTE EXPOSURE EFFECTS: DUST MAY IRRITATE EYES.

SKIN CONTACT ACUTE EXPOSURE EFFECTS:
SOME MAY EXPERIENCE SKIN IRRITATION FROM DUST.

INGESTION ACUTE EXPOSURE EFFECTS:
NO KNOWN ADVERSE EFFECTS, BUT INGESTION NOT RECOMMENDED.

SECTION 4. FIRST AID MEASURES

INHALATION:
REMOVE TO FRESH AIR. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
WASH AFFECTED AREAS WITH SOAP AND WATER. OBTAIN MEDICAL ASSISTANCE.
EYE CONTACT:
WASH WITH LARGE AMOUNTS OF WATER. OBTAIN FIRST AID AND MEDICAL ASSISTANCE, IF NEEDED.

INGESTION:
CALL POISON CONTROL CENTER, HOSPITAL EMERGENCY ROOM OR PHYSICIAN IMMEDIATELY.

SECTION 5. FIRE FIGHTING MEASURES

FIRE FIGHTING PROCEDURES: NOT APPLICABLE

HAZARDOUS PRODUCTS/COMBUSTION: NONE.

HAZARD RATING SOURCE:

NFPA:
HEALTH 1
FLAMMABILITY 0
REACTIVITY 0
OTHER

SECTION 6. ACCIDENTAL RELEASE MEASURES

CLEAN-UP: FOLLOW NORMAL CLEAN UP PROCEDURES.

SECTION 7. HANDLING AND STORAGE

HANDLING:
ALWAYS HANDLE AND STORE WHEELS IN A CAREFUL MANNER.
ALWAYS VISUALLY INSPECT ALL WHEELS BEFORE MOUNTING.
ALWAYS CHECK MACHINE SPEED AGAINST THE ESTABLISHED MAXIMUM SAFE OPERATING SPEED MARKED ON THE WHEEL.
ALWAYS CHECK MOUNTING FLANGES FOR EQUAL AND CORRECT DIAMETER.
ALWAYS USE MOUNTING BLOTTERS.
ALWAYS BE SURE WORK REST IS PROPERLY ADJUSTED.
ALWAYS USE A SAFETY GUARD COVERING AT LEAST ONE-HALF OF THE GRINDING WHEEL.
ALWAYS ALLOW NEWLY MOUNTED WHEELS TO RUN AT OPERATING SPEED, WITH GUARD IN PLACE, FOR AT LEAST ONE MINUTE BEFORE GRINDING.
ALWAYS TURN OFF COOLANT BEFORE STOPPING WHEEL TO AVOID CREATING AN OUT-OF-BALANCE WHEEL

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION PROTECTION:
RECOMMEND USING LOCAL EXHAUST VENTILATION WHEN GENERAL VENTILATION IS NOT KEEPING THE AIRBORNE CONCENTRATION BELOW THE TLV.

RESPIRATORY PROTECTION:
RESPIRATORS ARE REQUIRED WHEN AIRBORNE CONTAMINANT LEVELS EXCEED THE TLV(S).

EYE PROTECTION:
ALWAYS WEAR SAFETY GLASSES OR SOME TYPE OF EYE PROTECTION WHEN GRINDING.

OTHER PROTECTION:

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE & ODOR: SOLID ARTICLE. ODORLESS.

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES: AVOID ACIDS OF ALL TYPES WITH A pH <4.0.

DECOMPOSITION:
IN USE, DUST AND DECOMPOSING ODORS MAY BE GENERATED. IN MOST CASES, THE MATERIAL REMOVED FROM THE WORKPLACE WILL BE SIGNIFICANTLY GREATER THAN THE GRINDING WHEEL COMPONENTS. COOLANTS MAY PRODUCE OTHER DECOMPOSITION PRODUCTS.

FOR PRODUCTS CONTAINING PHENOL AND FORMALDEHYDE RESIN, THERMAL DECOMPOSITION MAY PRODUCE TRACE AMOUNTS OF PHENOL AND FORMALDEHYDE.
FOR PRODUCTS CONTAINING INORGANIC FLUORIDES, THERMAL DECOMPOSITION MAY PRODUCE TRACE AMOUNTS OF FLUORIDES.

SECTION 11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY:
FOR WHEELS CONTAINING FIBERGLASS, FIBER DIAMETERS ARE GREATER THAN 10 (MICRO)M, THEREFORE CONSIDERED NON-RESPIRABLE.

FIBERGLASS:
IARC: 3

LD50/LC50: VALUES ARE NOT APPROPRIATE OR AVAILABLE.

SECTION 12. ECOLOGICAL INFORMATION

CHEMICAL FATE:
RESIN BONDED MATERIALS DEMONSTRATE SIMILAR DEGRADATION RATES AS PHENOLIC PLASTICS.
VITRIFIED PRODUCTS DO NOT APPRECIABLY DECAY.

SECTION 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
USE STANDARD LANDFILL METHODS CONSISTENT WITH APPLICABLE FEDERAL, STATE, PROVINCIAL AND LOCAL LAWS.

PRODUCTS WITH LISTED FLUORIDES MAY HAVE SLIGHTLY SOLUBLE FLUORIDE SWARF.

RECYCLING PROGRAM:
THE COMPANY HAS DEVELOPED A GRINDING WHEEL RECYCLING PROGRAM.
IF YOU ARE INTERESTED IN RETURNING YOUR STUBS, INFORMATION CAN BE OBTAINED BY DIALING CUSTOMER SERVICE.
**SECTION 14. TRANSPORT INFORMATION**

HAZARD CLASS:
THIS PRODUCT IS NOT HAZARDOUS AS DEFINED BY THE DEPARTMENT OF TRANSPORTATION. (USA)

THIS PRODUCT IS "NOT REGULATED" UNDER THE TRANSPORTATION OF DANGEROUS GOODS ACT. (CAN)

**SECTION 15. REGULATORY INFORMATION**

EXPOSURE LIMITS/REGULATORY INFORMATION:

<table>
<thead>
<tr>
<th>SUBSTANCE DESCRIPTION</th>
<th>UNITS</th>
<th>OSHA</th>
<th>ACGIH</th>
<th>MOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINUM OXIDE, NON-FIBROUS</td>
<td>MG/M3</td>
<td>15.0000</td>
<td>10.0000</td>
<td>10.0000</td>
</tr>
<tr>
<td>CURED PHENOL FORMALDEHYDE RESIN</td>
<td>PPM</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>FIBERGLASS</td>
<td>FBR/CC</td>
<td>1.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>IRON DISULFIDE</td>
<td>MG/M3</td>
<td>10.0000</td>
<td>10.0000</td>
<td>10.0000</td>
</tr>
<tr>
<td>ZIRCONIUM OXIDE</td>
<td>MG/M3</td>
<td>5.0000</td>
<td>5.0000</td>
<td>5.0000</td>
</tr>
</tbody>
</table>

LEGEND:

EXPOSURE LIMIT DESCRIPTIONS:

CA PROP 65: NOT APPLICABLE

TSCA:
SECTION 8(B) - INVENTORY STATUS:
ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCE CONTROL ACT.

DOMESTIC SUBSTANCE LIST:
ALL COMPONENTS OF THIS PRODUCT ARE FOUND ON THE DOMESTIC SUBSTANCE LIST.

**SECTION 16. OTHER INFORMATION**

DISCLAIMER:
The information and recommendations set forth herein are taken from sources believed to be accurate as of the date hereof; however, the company makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.

KEY TO ABBREVIATIONS:
EQ=EQUAL
LT=LESS THAN
GT=GREATER THAN
AP=APPROXIMATELY
TR=TRACE
ND=NO DATA AVAILABLE