This Material Safety Data Sheet for Rubber Bonded Grinding Wheels covers all of the following items listed below:

1. Separating Discs
2. Red Flash Discs and Wheels
3. Ultra Thin
4. Veri Thin
5. Dura Thin
6. Ultra Flex
7. High Speed Discs
8. Cutoff Wheels
   1½ .025
   1½ .040
   1¼ .062
9. All Rubber Wheel Items
10. Rubber Medium Wheels
11. Rubber Clasp Polisher Items
12. Dentsply Label Items
13. Knife Edge Wheels

See attached sheets for ingredients that may be contained in the above products.

GRINDING WHEEL:

A wheel in which abrasive particles are embedded into, and held together by, a matrix or bond.

PURPOSES:

Remove Materail (Mounted stone, Mizzy Heatless wheel)
Cut Material (Cutoff wheels, Red Flash discs, and Ultra Thins)
Finish (polish) (Rubber wheels and points)

BOND TYPES:

Vitrified	Inorganic Bonds
Oxichloride	
Resin	Organic Bonds
Rubber	

RUBBER GRADES:

Soft Rubber: Pliable, i.e. Rubber Wheels Kegold Wheels, Clasp Polishers

Hard Rubber: Cutoff Wheels, Seperating discs, Veri-Thin, Ultra-Thin Dura-Thin, Ultra-Flex, Red Flash, R.F Finishing Wheels

ABRASIVE TYPES:

Aluminum Oxide: (red, brown, white) Primarily used on metallics
Silicon Carbide: (black, green) Primarily used on non-metallics

CONTAMINATION:

Silicon carbide abrasive can cause carbon dioxide bubbles if fired in an oxygen environment.

Aluminum oxide abrasive is non-contaminating - cannot cause bubbles The danger of contamination today is practically negligible since firing is done in a vacuum,

ABRASIVE GRIT SIZE:

Coarse - up to 80 grit
Medium - 90 to 150
Fine - 180 to 240
X Fine - 280-to-320

OPERATING SPEEDS:

Wheels are rated in Surface Feet Per Minute (SFM) which is converted to Revolutions Per Minute (RPM).

Rating factors are: Diameter
Bond Type
Overhang (mounted & unmounted points)

All Hall items 1½" diameter and less, are rated at 30,000 RPM. Rubber points are rated at 30,000 RPM with a ½" overhang or less.

NAIF: No Applicable Information Found

NA: Not Applicable

Material Safety Data Sheet

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

U.S. Department of Labor

Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

IDENTITY *(As Used on Label and List)*
Rubber Bonded Grinding Wheels

Section I

Manufacturer's Name
National Keystones Products Company

Address *(Number, Street, City, State, and ZIP Code)*
616 Hollywood Avenue

Cherry Hill, NJ 08002

Emergency Telephone Number
800-535-5053

Telephone Number for Information
609-663-4700

Date Prepared
August 7, 1996

Signature of Preparer *(optional)*
M. Patel

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	CAS #	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
Aluminum Oxide	1344-28-1	15mg/m^3	10mg/m^3	-	-
Silicon Carbide	409-21-2	15mg/m^3	10mg/m^3	-	-
Pumice	NAIF	NAIF	NAIF	-	-
Zinc Oxide	1314-13-2	5mg/m^3	5mg/m^3	-	-
Iron Oxide	1309-37-1	15mg/m^3	10mg/m^3	-	-
Magnesium Oxide	1309-48-4	15mg/m^3	10mg/m^3	-	-
Titanium Oxide	13463-67-7	15mg/m^3	10mg/m^3	-	-
Phenolic Resin	67700-42-9	10mg/m^3	10mg/m^3	-	-
Calcium Carbonate Lime Stn	1317-65-3	5mg/m^3	5mg/m^3	-	-
Kaolin/Clay	1332-58-7	5mg/m^3	5mg/m^3	-	-
Sulfur	7704-34-9	NAIF	NAIF	-	-
Hydrated Alumina	21645-51-2	10mg/m^3	10mg/m	-	-
Calcium metasilicate	13983-17-0	NAIF	NAIF	-	-

Section III — Physical/Chemical Characteristics

Boiling Point: NAIF

Vapor Pressure (mm Hg.): NAIF

Vapor Density (AIR = 1): NAIF

Solubility in Water: Slight

Appearance and Odor: Solid; May produce odor in use

Specific Gravity (H_2O = 1): 2-4

Melting Point: NAIF

Evaporation Rate (Butyl Acetate = 1): NAIF

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used): NAIF

Flammable Limits: N/a | LEL: - | UEL: -

Extinguishing Media: Use water

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

Section V — Reactivity Data

Stability: Unstable — Conditions to Avoid

Stable: X — NAIF

Incompatibility (*Materials to Avoid*): NAIF

Hazardous Decomposition or Byproducts: Dust is generated; But material removed from work piece is greater than wheel components

Hazardous Polymerization: May Occur — Conditions to Avoid: NAIF

Will Not Occur: X

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? Yes — Skin? Yes — Ingestion? Yes

Health Hazards (*Acute and Chronic*)

Inhalation: Acute- Coughing Shortness of Breath Chronic May affect breathin capacity

Skin: May cause irritation from dust EYES: Dust may irritate

Ingestion: No effects; ingestion not recommended

Carcinogenicity: None — NTP? — IARC Monographs? — OSHA Regulated?

Signs and Symptoms of Exposure: Coughing, Shortness of Breath, Skin Irritation, and Eye Irritation

Medical Conditions Generally Aggravated by Exposure: Those aggrivated by nusiance dust; Grinding may also create elevated sound Levels which may effect hearing

Emergency and First Aid Procedures

Inhalation: Remove to fresh air: Eyes: Flush with large quanities of water

Skin: Wash with soap and water. Obtain medical assistance if necessary

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled: Normal clean up procedures

Waste Disposal Method: Normal landfill methods consistent with Federal, State and local laws

Precautions to Be Taken in Handling and Storing: See ANSI Standard B7.1

Other Precautions: Handle with adequate ventilation: See OSHA 29CFR1910.94 and 29CFR1910.1000

Section VIII — Control Measures

Respiratory Protection (*Specify Type*): Approved dust respirators See OSHA 29CFR1910.134

Ventilation: Local Exhaust: Recommended — Special

Mechanical (*General*): Recommended — Other: NAIF

Protective Gloves: As desired by user — Eye Protection: Recommended: goggles

Other Protective Clothing or Equipment: Hearing protection as needed. See OSHA 29CFR1910.215

Work/Hygienic Practices: Good Lab Housekeeping practices

• USGPO 1986—491-529/45775