

# 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



IDENTITY (As Used on Label and List)  
Abrasive Wheel      FORM 33

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.

**Section I**

Manufacturer's Name Bullard Abrasive Products Inc.	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) Hopkinton Rd. Westboro, Mass. 01581	Telephone Number for Information 617-366-4468
Date Prepared 10/86	Signature of Preparer (optional) <i>Donald Newton, P.E.</i> Newton Associates in Engineering, Inc.

**Section II — Hazardous Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Aluminum Oxide, Al <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	33.36
Phenol-Formaldehyde Resin	N/A	15 mg/m <sup>3</sup>	N/A	41.03
Garnet, Almandite, Fe <sub>3</sub> Al <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	7.76
Zircon, ZrSiO <sub>4</sub>	N/A	5 mg/m <sup>3</sup>	N/A	7.92
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	6.42
fiberglass, Amorphous Silica, SiO <sub>2</sub>	N/A	0.8 mg/m <sup>3</sup>	N/A	3.40
Acrylic Resin	N/A	15 mg/m <sup>3</sup>	N/A	.07
Pigment, Inorganic, Various	N/A	15 mg/m <sup>3</sup>	N/A	.04

**Section III — Physical/Chemical Characteristics**

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water	none		
Appearance and Odor	solid, various colors, may have slight phenolic odor.		

**Section IV — Fire and Explosion Hazard Data**

Flash Point (Method Used) None	Flammable Limits None	LEL N/A	UEL N/A
Extinguishing Media N/A	Special Fire Fighting Procedures None required		
Unusual Fire and Explosion Hazards N/A			

Section V — Reactivity Data

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic) pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure deposits of dust in eyes, ears and nasal passages; irritation of the mucous membranes; coughing; sneezing

Medical Conditions Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures Remove to fresh air, irrigate eyes, contact physician 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 Standard landfill methods consistent with applicable state and federal regulations

Precautions to Be Taken in Handling and Storing Normal handling and storage methods using caution not to drop or crush.

Other Precautions Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

Section VIII — Control Measures

Respiratory Protection (Specify Type) OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	recommended	Special	N/A
	Mechanical (General)	useful	Other	N/A

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices Keep clothing and area clean.

# 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)  
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IDENTITY (As Used on Label and List)

Abrasive Wheel FORM 34

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## Section I

Manufacturer's Name <b>Bullard Abrasive Products Inc.</b>	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) <b>Hopkinton Rd.</b>	Telephone Number for Information <b>617-366-4468</b>
<b>Westboro, Mass. 01581</b>	Date Prepared <b>10/86</b>
	Signature of Preparer (optional) <i>Donald S. Newton, P.E.</i> <b>Newton Associates in Engineering, Inc.</b>

## Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Aluminum Oxide, Al <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	40.14
Phenol-Formaldehyde Resin	N/A	15 mg/m <sup>3</sup>	N/A	36.72
Cryolite, Sodium Aluminum Fluoride Na <sub>3</sub> AlF <sub>6</sub>	N/A	15 mg/m <sup>3</sup>	N/A	7.67
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	10.92
Fiberglass, Amorphous Silica, SiO <sub>2</sub>	N/A	0.8 mg/m <sup>3</sup>	N/A	3.34
Acrylic Resin	N/A	15 mg/m <sup>3</sup>	N/A	.70
Pigment, Inorganic, Various	N/A	15 mg/m <sup>3</sup>	N/A	.45

## Section III — Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water

none

Appearance and Odor

solid, various colors, may have slight phenolic odor.

## Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) <b>None</b>	Flammable Limits <b>None</b>	LEL <b>N/A</b>	UEL <b>N/A</b>
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Extinguishing Media  
**N/A**

Special Fire Fighting Procedures

**None required**

Unusual Fire and Explosion Hazards

**N/A**

**Section V — Reactivity Data**

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

**Section VI — Health Hazard Data**

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic) pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure deposits of dust in eyes, ears and nasal passages; irritation of the mucous membranes; coughing; sneezing

Medical Conditions Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures Remove to fresh air, irrigate eyes, contact physician 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 Standard landfill methods consistent with applicable state and federal regulations

Precautions to Be Taken in Handling and Storing Normal handling and storage methods using caution not to drop or crush.

Other Precautions Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

**Section VIII — Control Measures**

Respiratory Protection (Specify Type) OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	recommended	Special	N/A
	Mechanical (General)	useful	Other	N/A

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices Keep clothing and area clean.

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**U.S. Department of Labor**

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



IDENTITY (As Used on Label and List) **FORM 35**  
**Abrasive Wheel**

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**Section I**

Manufacturer's Name <b>Bullard Abrasive Products Inc.</b>	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) <b>Hopkinton Rd.</b>	Telephone Number for Information <b>617-366-4468</b>
<b>Westboro, Mass. 01581</b>	Date Prepared <b>10/86</b>
	Signature of Preparer (optional) <i>Donald H. Newton, P.E.</i> <b>Newton Associates in Engineering, Inc.</b>

**Section II — Hazardous Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Aluminum Oxide, Al <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	33.47
Phenol-Formaldehyde Resin	N/A	15 mg/m <sup>3</sup>	N/A	29.11
Garnet, Almandite, Fe <sub>3</sub> Al <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	9.58
Lime, Quicklime, CaO	N/A	2 mg/m <sup>3</sup>	N/A	10.09
Zircon, ZrSiO <sub>4</sub>	N/A	5 mg/m <sup>3</sup>	N/A	5.56
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	9.84
Fiberglass, Amorphous Silica, SiO <sub>2</sub>	N/A	0.8 mg/m <sup>3</sup>	N/A	2.22
Acrylic Resin	N/A	15 mg/m <sup>3</sup>	N/A	07
Pigment, Inorganic, Various	N/A	15 mg/m <sup>3</sup>	N/A	.05

**Section III — Physical/Chemical Characteristics**

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water	none		
Appearance and Odor	solid, various colors, may have slight phenolic odor.		

**Section IV — Fire and Explosion Hazard Data**

Flash Point (Method Used) None	Flammable Limits None	LEL N/A	UEL N/A
Extinguishing Media N/A			
Special Fire Fighting Procedures None required			
Unusual Fire and Explosion Hazards N/A			

Section V — Reactivity Data

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

Section VI — Health Hazard Data

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic) pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure deposits of dust in eyes, ears and nasal passages; irritation of the mucuous membranes; coughing; sneezing

Medical Conditions Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures Remove to fresh air, irrigate eyes, contact physician 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 Standard landfill methods consistent with applicable state and federal regulations

Precautions to Be Taken in Handling and Storing Normal handling and storage methods using caution not to drop or crush.

Other Precautions Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

Section VIII — Control Measures

Respiratory Protection (Specify Type) OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust recommended	Special N/A
	Mechanical (General) useful	Other N/A

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices Keep clothing and area clean.

**Material Safety Data Sheet**  
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 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



**IDENTITY (As Used on Label and List)**  
 Abrasive Wheel      FORM 36

*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.*

**Section I**

Manufacturer's Name Bullard Abrasive Products Inc.	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) Hopkinton Rd.  Westboro, Mass. 01581	Telephone Number for Information 617-366-4468
	Date Prepared 10/86
	Signature of Preparer (optional) <i>Donald A. Newhall P.E.</i> Newton Associates in Engineering, Inc.

**Section II — Hazardous Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Aluminum Oxide, Al <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	36.99
Phenol Formaldehyde Resin	N/A	15 mg/m <sup>3</sup>	N/A	32.54
Garnet, Almandite, Fe <sub>3</sub> Al <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	10.57
Zircon, ZrSiO <sub>4</sub>	N/A	5 mg/m <sup>3</sup>	N/A	6.12
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	10.80
Fiberglass, amorphous silica, SiO <sub>2</sub>	N/A	0.8 mg/m <sup>3</sup>	N/A	2.78
Acrylic Resin	N/A	15 mg/m <sup>3</sup>	N/A	.09
Pigment, Inorganic, Various	N/A	15 mg/m <sup>3</sup>	N/A	.06

**Section III — Physical/Chemical Characteristics**

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water	none		
Appearance and Odor	solid, various colors, may have slight phenolic odor.		

**Section IV — Fire and Explosion Hazard Data**

Flash Point (Method Used) None	Flammable Limits None	LEL N/A	UEL N/A
Extinguishing Media N/A			
Special Fire Fighting Procedures None required			
Unusual Fire and Explosion Hazards N/A			

**Section V — Reactivity Data**

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

**Section VI — Health Hazard Data**

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic) pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure deposits of dust in eyes, ears and nasal passages; irritation of the mucuous membranes; coughing; sneezing

Medical Conditions Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures Remove to fresh air, irrigate eyes, contact physician 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 Standard landfill methods consistent with applicable state and federal regulations

Precautions to Be Taken in Handling and Storing Normal handling and storage methods using caution not to drop or crush.

Other Precautions Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

**Section VIII — Control Measures**

Respiratory Protection (Specify Type) OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	Special
	<u>recommended</u>	<u>N/A</u>
	Mechanical (General)	Other
	<u>useful</u>	<u>N/A</u>

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices Keep clothing and area clean.

**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  
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IDENTITY (As Used on Label and List)  
**Abrasive Wheel**      **FORM 37**

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.

**Section I**

Manufacturer's Name <b>Bullard Abrasive Products Inc.</b>	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) <b>Hopkinton Rd.</b>	Telephone Number for Information <b>617-366-4468</b>
<b>Westboro, Mass. 01581</b>	Date Prepared <b>10/86</b>
Signature of Preparer (optional) <i>Donald H. Meadows P.E.</i> <b>Newton Associates in Engineering, Inc.</b>	

**Section II — Hazardous Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Aluminum Oxide, Al <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	35.69
Titanium Dioxide, TiO <sub>2</sub>	N/A	15 mg/m <sup>3</sup>	N/A	1.10
Phenol Formaldehyde Resin	N/A	15 mg/m <sup>3</sup>	N/A	32.59
Garnet, Almandite, Fe <sub>3</sub> Al <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	10.71
Zircon, ZrSiO <sub>4</sub>	N/A	5 mg/m <sup>3</sup>	N/A	.6.32
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	10.98
Fiberglass, Amorphous Silica	N/A	0.8 mg/m <sup>3</sup>	N/A	2.47
Acrylic Resin	N/A	15 mg/m <sup>3</sup>	N/A	.08
Pigment, Inorganic, Various	N/A	15 mg/m <sup>3</sup>	N/A	.05

**Section III — Physical/Chemical Characteristics**

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water	none		
Appearance and Odor	solid, various colors, may have slight phenolic odor.		

**Section IV — Fire and Explosion Hazard Data**

Flash Point (Method Used) None	Flammable Limits None	LEL N/A	UEL N/A
Extinguishing Media N/A			
Special Fire Fighting Procedures None required			
Unusual Fire and Explosion Hazards N/A			

**Section V — Reactivity Data**

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

**Section VI — Health Hazard Data**

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic) pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure  
deposits of dust in eyes, ears and nasal passages; irritation of the mucuous membranes; coughing; sneezing

Medical Conditions Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures  
Remove to fresh air, irrigate eyes, contact physician 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  
Standard landfill methods consistent with applicable state and federal regulations

Precautions to Be Taken in Handling and Storing  
Normal handling and storage methods using caution not to drop or crush.

Other Precautions  
Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

**Section VIII — Control Measures**

Respiratory Protection (Specify Type)  
OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	Special
	Mechanical (General)	Other
	<u>recommended</u>	<u>N/A</u>
	<u>useful</u>	<u>N/A</u>

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices  
Keep clothing and area clean.



IDENTITY (As Used on Label and List) **FORM 38**  
 Abrasive Wheel

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.

**Section I**

Manufacturer's Name <b>Bullard Abrasive Products Inc.</b>	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) <b>Hopkinton Rd.</b>	Telephone Number for Information <b>617-366-4468</b>
<b>Westboro, Mass. 01581</b>	Date Prepared <b>10/86</b>
	Signature of Preparer (optional) <b>Newton Associates in Engineering, Inc.</b>

**Section II — Hazardous Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Silicon Carbide, SiC	N/A	15 mg/m <sup>3</sup>	N/A	27.29
Phenol-Formaldehyde Resin	N/A	15 mg/m <sup>3</sup>	N/A	34.17
Zircon, ZrSiO <sub>4</sub>	N/A	5 mg/m <sup>3</sup>	N/A	9.55
Garnet, Almandite, Fe <sub>3</sub> Al <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	13.92
Aluminum Oxide Al <sub>2</sub> O <sub>3</sub>	N/A	15 mg/m <sup>3</sup>	N/A	12.83
Fiberglass, Amorphous Silica, SiO <sub>2</sub>	N/A	0.8 mg/m <sup>3</sup>	N/A	2.05
Acrylic Resin	N/A	15 mg/m <sup>3</sup>	N/A	.10
Pigment, Inorganic, Various	N/A	15 mg/m <sup>3</sup>	N/A	.07

**Section III — Physical/Chemical Characteristics**

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water **none**

Appearance and Odor **solid, various colors, may have slight phenolic odor.**

**Section IV — Fire and Explosion Hazard Data**

Flash Point (Method Used) <b>None</b>	Flammable Limits <b>None</b>	LEL <b>N/A</b>	UEL <b>N/A</b>
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Extinguishing Media **N/A**

Special Fire Fighting Procedures **None required**

Unusual Fire and Explosion Hazards **N/A**

**Section V — Reactivity Data**

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

**Section VI — Health Hazard Data**

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic)  
pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure  
deposits of dust in eyes, ears and nasal passages; irritation of the mucuous membranes; coughing; sneezing

Medical Conditions Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures  
Remove to fresh air, irrigate eyes, contact physician 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  
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Precautions to Be Taken in Handling and Storing  
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Other Precautions  
Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

**Section VIII — Control Measures**

Respiratory Protection (Specify Type)  
OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	Special
	<u>recommended</u>	N/A
	Mechanical (General)	Other
	<u>useful</u>	N/A

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices  
Keep clothing and area clean.

# 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

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Form Approved  
OMB No. 1218-0072



IDENTITY (As Used on Label and List)  
Abrasive Wheel FORM 40

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.

### Section I

Manufacturer's Name Bullard Abrasive Products Inc.	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) Hopkinton Rd.  Westboro, Mass. 01581	Telephone Number for Information 617-366-4468
	Date Prepared 10/86
	Signature of Preparer (optional) <i>Donald H. Newton, S.P.E.</i> Newton Associates in Engineering, Inc.

### Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Silicon Carbide, SiC	N/A	15 mg/m <sup>3</sup>	N/A	43.74
Phenol-Formaldehyde Resin	N/A	15 mg/m <sup>3</sup>	N/A	50.74
Carbon Black, Graphite, C	N/A	3.5 mg/m <sup>3</sup>	N/A	5.47
Acrylic Resin	N/A	15 mg/m <sup>3</sup>	N/A	.03
Pigment, Inorganic, Various	N/A	15 mg/m <sup>3</sup>	N/A	.02

### Section III — Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water

none

Appearance and Odor

solid, various colors, may have slight phenolic odor.

### Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) None	Flammable Limits None	LEL N/A	UEL N/A
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Extinguishing Media  
N/A

Special Fire Fighting Procedures  
None required

Unusual Fire and Explosion Hazards  
N/A

**Section V — Reactivity Data**

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (*Materials to Avoid*) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

**Section VI — Health Hazard Data**

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (*Acute and Chronic*)  
pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure  
deposits of dust in eyes, ears and nasal passages; irritation of the mucuous membranes; coughing; sneezing

Medical Conditions  
Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures  
Remove to fresh air, irrigate eyes, contact physician 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  
Standard landfill methods consistent with applicable state and federal regulations

Precautions to Be Taken in Handling and Storing  
Normal handling and storage methods using caution not to drop or crush.

Other Precautions  
Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

**Section VIII — Control Measures**

Respiratory Protection (*Specify Type*)  
OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	Special
	Mechanical ( <i>General</i> ) useful	Other N/A

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices  
Keep clothing and area clean.

**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



IDENTITY (As Used on Label and List)  
**Abrasive Wheel**      **FORM 41**

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**Section I**

Manufacturer's Name <b>Bullard Abrasive Products Inc.</b>	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) <b>Hopkinton Rd. Westboro, Mass. 01581</b>	Telephone Number for Information <b>617-366-4468</b>
	Date Prepared <b>10/86</b>
	Signature of Preparer (optional) <i>Donald M. Newton, P.E.</i> <b>Newton Associates in Engineering, Inc.</b>

**Section II — Hazardous Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
<b>Cryolite, Sodium Aluminum Fluoride</b> $Na_3AlF_6$	N/A	15 mg/m <sup>3</sup>	N/A	6.67
<b>Phenol-formaldehyde Resin</b>	N/A	15 mg/m <sup>3</sup>	N/A	40.57
<b>Garnet, Almandite, Fe<sub>3</sub>Al<sub>2</sub>(SiO<sub>4</sub>)<sub>3</sub></b>	N/A	15 mg/m <sup>3</sup>	N/A	8.51
<b>Aluminum Oxide, Al<sub>2</sub>O<sub>3</sub></b>	N/A	15 mg/m <sup>3</sup>	N/A	33.36
<b>Fiberglass, Amorphous Silica, SiO<sub>2</sub></b>	N/A	0.8 mg/m <sup>3</sup>	N/A	1.79
<b>Acrylic Resin</b>	N/A	15 mg/m <sup>3</sup>	N/A	.08
<b>Pigment, Inorganic, Various</b>	N/A	15 mg/m <sup>3</sup>	N/A	.05
<b>Wax, Paraffin</b>	N/A	2 mg/m <sup>3</sup>	N/A	8.84

**Section III — Physical/Chemical Characteristics**

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water      **none**

Appearance and Odor  
**solid, various colors, may have slight phenolic odor.**

**Section IV — Fire and Explosion Hazard Data**

Flash Point (Method Used) <b>None</b>	Flammable Limits <b>None</b>	LEL <b>N/A</b>	UEL <b>N/A</b>
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Extinguishing Media  
**N/A**

Special Fire Fighting Procedures  
**None required**

Unusual Fire and Explosion Hazards  
**N/A**

**Section V — Reactivity Data**

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

**Section VI — Health Hazard Data**

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic)  
pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure  
deposits of dust in eyes, ears and nasal passages; irritation of the mucuous membranes; coughing; sneezing

Medical Conditions  
Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures  
Remove to fresh air, irrigate eyes, contact physician 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  
Standard landfill methods consistent with applicable state and federal regulations

Precautions to Be Taken in Handling and Storing  
Normal handling and storage methods using caution not to drop or crush.

Other Precautions  
Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

**Section VIII — Control Measures**

Respiratory Protection (Specify Type)  
OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	Special
	Mechanical (General)	Other
	<u>recommended</u>	<u>N/A</u>
	<u>useful</u>	<u>N/A</u>

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices  
Keep clothing and area clean.

# 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



IDENTITY (As Used on Label and List) **FORM 42**  
**Abrasive Wheel**

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## Section I

Manufacturer's Name <b>Bullard Abrasive Products Inc.</b>	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code) <b>Hopkinton Rd.</b>	Telephone Number for Information <b>617-366-4468</b>
<b>Westboro, Mass. 01581</b>	Date Prepared <b>10/86</b>
	Signature of Preparer (optional) <i>Donald J. Newton, P.E.</i> <b>Newton Associates in Engineering, Inc.</b>

## Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
<b>Cryolite, Sodium Aluminum Fluoride</b> <b>Na<sub>3</sub>AlF<sub>6</sub></b>	N/A	15 mg/m <sup>3</sup>	N/A	6.14
<b>Phenol-Formaldehyde Resin</b>	N/A	15 mg/m <sup>3</sup>	N/A	37.00
<b>Garnet, Almandite, Fe<sub>3</sub>Al<sub>2</sub>(SiO<sub>4</sub>)<sub>3</sub></b>	N/A	15 mg/m <sup>3</sup>	N/A	7.66
<b>Aluminum Oxide, Al<sub>2</sub>O<sub>3</sub></b>	N/A	15 mg/m <sup>3</sup>	N/A	30.32
<b>Lime, Quicklime, CaO</b>	N/A	2 mg/m <sup>3</sup>	N/A	7.96
<b>Fiberglass, Amorphous Silica, SiO<sub>2</sub></b>	N/A	0.8 mg/m <sup>3</sup>	N/A	1.98
<b>Acrylic Resin</b>	N/A	15 mg/m <sup>3</sup>	N/A	.09
<b>Pigment, Inorganic, Various</b>	N/A	15 mg/m <sup>3</sup>	N/A	.06
<b>Wax, Paraffin</b>	N/A	2 mg/m <sup>3</sup>	N/A	8.79

## Section III — Physical/Chemical Characteristics

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	N/A
Vapor Pressure (mm Hg.)	N/A	Melting Point	N/A
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility in Water **none**

Appearance and Odor **solid, various colors, may have slight phenolic odor.**

## Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) <b>None</b>	Flammable Limits <b>None</b>	LEL <b>N/A</b>	UEL <b>N/A</b>
Extinguishing Media <b>N/A</b>			
Special Fire Fighting Procedures <b>None required</b>			

Unusual Fire and Explosion Hazards  
**N/A**

**Section V — Reactivity Data**

Stability	Unstable	N/A	Conditions to Avoid none
	Stable	X	none

Incompatibility (Materials to Avoid) none

Hazardous Decomposition or Byproducts none

Hazardous Polymerization	May Occur	N/A	Conditions to Avoid N/A
	Will Not Occur	X	N/A

**Section VI — Health Hazard Data**

Route(s) of Entry: Inhalation? yes Skin? no Ingestion? no

Health Hazards (Acute and Chronic) pneumoconiosis, silicosis, emphysema

Carcinogenicity: NTP? no IARC Monographs? no OSHA Regulated? no

Signs and Symptoms of Exposure  
deposits of dust in eyes, ears and nasal passages; irritation of the mucuous membranes; coughing; sneezing

Medical Conditions Generally Aggravated by Exposure nasal, bronchial or pulmonary conditions which tend to restrict breathing

Emergency and First Aid Procedures  
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**Section VII — Precautions for Safe Handling and Use**

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Normal handling and storage methods using caution not to drop or crush.

Other Precautions  
Do not use at speeds greater than the not-to-exceed speed printed on the hub assembly.

**Section VIII — Control Measures**

Respiratory Protection (Specify Type)  
OSHA or NIOSH approved respirators may be required

Ventilation	Local Exhaust	Special
	Mechanical (General)	Other
	<u>recommended</u>	<u>N/A</u>
	<u>useful</u>	<u>N/A</u>

Protective Gloves May be useful Eye Protection recommended

Other Protective Clothing or Equipment not required

Work/Hygienic Practices  
Keep clothing and area clean.