Safety Data Sheet

Resin-bonded, fibreglass-reinforced depressed-centre grinding wheels - Type 27 (flat), Type 28 (saucer) and Type 29 (conical)

Date of preparation: August 15, 2025

Depressed-centre grinding wheels nominal 4" to 9" (100 - 230 mm) diameter; thickness approx. 1/4" (6 mm), some 3/16" - 5/16"; arbor 7/8" or 5/8"-11 threaded hub. Type 27 (flat depressed-centre), Type 28 (saucer/conical-faced) and Type 29 (conical) profiles. Abrasive grain aluminum oxide and/or zirconia alumina (some grades blended with silicon carbide); grits approx. 16 - 36. Maximum operating speed varies by diameter (commonly ~80 m/s, e.g. 13,300 RPM at 4-1/2"; always verify the RPM marked on each wheel).

Section 1. Identification

Product name	Aluminum Oxide / Zirconia Alumina Depressed-Centre Grinding Wheels
Product types / variants covered	Depressed-centre grinding wheels nominal 4" to 9" (100 - 230 mm) diameter; thickness approx. 1/4" (6 mm), some 3/16" - 5/16"; arbor 7/8" or 5/8"-11 threaded hub. Type 27 (flat depressed-centre), Type 28 (saucer/conical-faced) and Type 29 (conical) profiles. Abrasive grain aluminum oxide and/or zirconia alumina (some grades blended with silicon carbide); grits approx. 16 - 36. Maximum operating speed varies by diameter (commonly ~80 m/s, e.g. 13,300 RPM at 4-1/2"; always verify the RPM marked on each wheel).
Recommended use	Reinforced bonded abrasive wheels for heavy-duty surface grinding, weld blending, edge bevelling, deburring and stock removal on ferrous and non-ferrous metals, stainless steel and similar materials using a hand-held right-angle grinder. Used on the wheel face, not for cutting-off.
Restrictions on use	Industrial / professional use. Use only as intended and never above the maximum operating speed (RPM) marked on the product. No other restrictions.
Company (supplier / importer)	Whitby Abrasives Inc.
Address	Unit 2, 1450 Victoria Street East, Whitby, Ontario, Canada
Telephone	905-430-1777
E-mail	info@whitbyabrasives.com
Website	whitbyabrasives.ca
Emergency telephone	905-430-1777 (business hours). For a life-threatening emergency call 911.
Date of preparation	August 15, 2025

Section 2. Hazard(s) Identification

Classification - Canada (WHMIS 2015 / Hazardous Products Regulations, SOR/2015-17): This product is a manufactured article and, as supplied, is not a "hazardous product."

Classification - United States (OSHA HazCom 2012, 29 CFR 1910.1200): This product meets the definition of an "article" and is not classified as hazardous as shipped.

Label elements / signal word / pictograms: None required for the article as supplied.

Precautionary statements:

- Always wear appropriate personal protective equipment (see Section 8).

- Refer to ANSI B7.1 and the machine manufacturer's instructions for safe mounting, guarding and use.
- Do not handle or use until all safety precautions have been read and understood.
- Never exceed the maximum operating speed (RPM) marked on the product.

Hazards not otherwise classified (HNOC) / supplemental information: Hazards not otherwise classified (HNOC): This product is an article (a bonded abrasive wheel) and in its supplied form is not classified as hazardous under WHMIS 2015 / OSHA HazCom 2012; physical hazards arise only in use. The wheel rotates at very high speed; a cracked, damaged, over-speeded or improperly mounted wheel can burst and eject fragments at high velocity, causing severe or fatal injury. These wheels grind on the FACE, so side loading is normal, but excessive pressure, gouging or grinding on the extreme edge can fracture the wheel. High-speed grinding generates abundant sparks and hot particles (an ignition source near flammables), localized heat, high noise and vibration, and airborne dust containing wheel constituents plus particles of the base material and coatings being ground. More aggressive grains (zirconia/ceramic alumina) cut faster and can raise spark stream and heat; dust of combustible metals (magnesium, aluminum, titanium) presents a fire/explosion hazard.

Section 3. Composition / Information on Ingredients

Chemical name	CAS No.	Concentration (%)
Aluminum oxide (incl. calcined / ceramic alumina) **	1344-28-1	30 - 90%
Zirconia alumina - reported as aluminum oxide 1344-28-1 plus zirconium oxide (zirconia) **	1314-23-4	0 - 60%
Silicon carbide (non-fibrous abrasive grain) **	409-21-2	0 - 30%
Cured phenolic (phenol-formaldehyde) resin bond **	Mixture / N.A.	10 - 30%
Continuous-filament / fibreglass reinforcement (glass fibre) **	65997-17-3	2 - 20%
Cryolite / sodium aluminum fluoride and potassium tetrafluoroborate (KBF4 14075-53-7) grinding aids **	15096-52-3	0 - 20%
Inert / active fillers - iron pyrite (FeS2 12068-85-8), calcium carbonate (471-34-1), barium sulfate (7727-43-7), calcium oxide (1305-78-8), fluorspar / calcium fluoride (7789-75-5) **	12068-85-8	0 - 25%

** Substance is a compound and/or mixture.

** This component is itself a compound and/or mixture; the CAS number shown identifies the principal substance.

The specific chemical identity and/or exact percentage (concentration) of one or more components has been withheld as a trade secret in accordance with WHMIS 2015 (HPR s.46) and OSHA 29 CFR 1910.1200(i).

Asbestos-free and lead-free: no asbestos or lead-containing materials are intentionally added to this product.

CRYSTALLINE SILICA / QUARTZ (CAS 14808-60-7): The synthetic abrasive grains (aluminum oxide, zirconia alumina, silicon carbide) are fused/sintered materials containing essentially no free

crystalline silica. However, resin-bonded wheels typically contain mineral fillers and fibreglass that can include trace quartz, an IARC Group 1 carcinogen. Any quartz is inextricably bound in the cured article so no exposure is expected from the intact wheel, but respirable quartz could be released in dust during grinding. The presence and amount in THIS product have NOT been confirmed - neither asserted nor denied; see attention flags / confirm with the manufacturer.

Grinding dust will also contain particles of the workpiece (base metal), its coatings (paint, plating, primer) and any prior surface treatment; those constituents (e.g. hexavalent chromium, nickel, manganese, lead, cadmium) are frequently the dominant exposure hazard and must be evaluated separately.

Section 4. First-Aid Measures

Eyes: If dust or particles enter the eyes, remove contact lenses if present and easy to do. Flush thoroughly with large amounts of water, holding the eyelids open. If irritation or a foreign body persists, seek medical attention.

Skin: Wash with soap and water. Clean and treat any abrasion or cut as a minor wound. If irritation develops or a cut is serious, seek medical attention.

Ingestion: Not a likely route of exposure for a solid article. Do not induce vomiting. Rinse mouth with water. Seek medical attention if a large amount is swallowed or if you feel unwell.

Inhalation (of dust generated in use): Move the person to fresh air. If breathing is difficult, have qualified personnel administer oxygen. Seek medical attention if irritation or other symptoms persist.

Most important symptoms/effects, acute and delayed: Dust may cause mechanical irritation of the eyes and respiratory tract. Prolonged inhalation of high dust concentrations may cause adverse effects on the lungs. Exposure to dust from the base material or coatings being processed may present additional health hazards.

Indication of immediate medical attention / special treatment: No specific antidote. Treat symptomatically. Immediate medical attention should not normally be required.

Section 5. Fire-Fighting Measures

Suitable extinguishing media: Use any media that is suitable for the surrounding fire.

Unsuitable extinguishing media: Do not use water on fires involving metal dusts or fines; use an appropriate Class D dry powder.

Specific hazards arising from the product: This product is not flammable or combustible as supplied. Consideration must be given to the potential fire/explosion hazard from dust or fines of the base material being processed; many materials create flammable or explosive dusts or turnings when machined or ground.

Special protective equipment and precautions for fire-fighters: Fire-fighters should wear full emergency protective equipment and a NIOSH-approved positive-pressure self-contained breathing apparatus (SCBA).

Section 6. Accidental Release Measures

Personal precautions, protective equipment, emergency procedures: As a solid article, accidental release is not a typical concern. When handling accumulated grinding dust, wear an appropriate respirator and protective clothing to avoid eye contact and inhalation of dust (see Section 8).

Methods and materials for containment and cleaning up: Pick up whole or used product and place it in suitable containers. Carefully collect dust, avoiding the creation of airborne dust - vacuuming with appropriate filtration or damp methods is preferred over dry sweeping. Place collected material in a suitable closed container for disposal (see Section 13).

Section 7. Handling and Storage

Precautions for safe handling:

- Read and follow ANSI B7.1 (Safety Requirements for the Use, Care and Protection of Abrasive Wheels) and the machine manufacturer's instructions.
- Inspect every wheel before mounting; do not use a wheel that is cracked, chipped or has been dropped. For vitrified wheels, perform a 'ring test' before mounting.
- Never exceed the maximum operating speed (RPM) marked on the wheel; confirm the machine's no-load speed does not exceed it.
- Use clean, undamaged flanges of equal and correct diameter with proper blotters; do not over-tighten.
- Always use the machine guard; keep the work rest (where fitted) properly adjusted and close to the wheel.
- Run the wheel at operating speed, with the guard in place, for at least one minute before grinding; stand to one side, clear of the plane of rotation.
- Do not grind on the side of a Type 1 (flat) cut-off wheel; use the periphery only for cutting.
- Do not apply excessive or side pressure; use only a wheel that matches the machine's speed and size ratings.
- Avoid breathing dust; use adequate ventilation; wear PPE; wash thoroughly after handling; evaluate exposure to the base material being processed.
- Use a depressed-centre wheel on its FACE for grinding at the manufacturer's recommended work angle (typically 15-30 degrees); do not use a Type 27/28/29 grinding wheel for cutting-off or for narrow-edge slotting.
- Match the wheel's marked maximum operating speed (RPM) and arbor/hub to the tool; never exceed the rated RPM and always use the proper guard and matching flanges (or the threaded backing for hubbed wheels).
- Inspect every wheel for cracks/damage and ring-test or spin-test (run at operating speed behind the guard for at least one minute) before grinding; never use a wheel that has been dropped or wetted/contaminated.
- Allow a new or remounted wheel to run up to speed behind the guard with the operator and bystanders out of the plane of rotation before applying it to the work.

Conditions for safe storage, including incompatibilities: Store flat, dry and supported to prevent warping, in the original packaging, away from extreme temperature/humidity changes and out of direct sunlight; keep away from solvents, oils and strong chemicals; observe the shelf-life / expiry date marked on resin-bonded wheels.

Section 8. Exposure Controls / Personal Protection

Occupational exposure limits:

Component	Exposure limits
Aluminum oxide (as Al)	OSHA PEL 15 mg/m3 (total dust) / 5 mg/m3 (respirable); ACGIH TLV 1 mg/m3 (respirable, as Al); ON O.Reg.833 = ACGIH TLV
Zirconium oxide / zirconia (as Zr)	OSHA PEL 5 mg/m3 (as Zr); ACGIH TLV 5 mg/m3 TWA, 10 mg/m3 STEL (as Zr)
Silicon carbide (non-fibrous)	OSHA PEL 15 mg/m3 (total) / 5 mg/m3 (respirable); ACGIH TLV 10 mg/m3 (inhalable) / 3 mg/m3 (respirable)
Cryolite / inorganic fluorides (as F) - incl. KBF4, fluorspar	OSHA PEL 2.5 mg/m3 (as F); ACGIH TLV 2.5 mg/m3 (as F)
Barium sulfate	OSHA PEL 15 mg/m3 (total) / 5 mg/m3 (respirable); ACGIH TLV 5 mg/m3 (inhalable)
Calcium carbonate / iron pyrite (as inert filler dust, PNOC/PNOR)	OSHA PEL 15 mg/m3 (total) / 5 mg/m3 (respirable); ACGIH TLV 10 mg/m3 (inhalable) / 3 mg/m3 (respirable, as PNOC)
Calcium oxide	OSHA PEL 5 mg/m3; ACGIH TLV 2 mg/m3
Cured phenolic resin bond / continuous-filament glass fibre	Phenolic bond not established - control as PNOC: 10 mg/m3 (inhalable) / 3 mg/m3 (respirable). Continuous-filament glass fibre ACGIH TLV 1 fibre/cc (respirable) + 5 mg/m3 (inhalable dust).
Crystalline silica / quartz (respirable, IF present)	OSHA PEL 0.05 mg/m3 (respirable, 29 CFR 1910.1053; action level 0.025 mg/m3); ACGIH TLV 0.025 mg/m3 (respirable); ON O.Reg.833 0.10 mg/m3 (respirable, designated substance)

Source of exposure-limit data: ACGIH, OSHA, Ontario O. Reg. 833. Also consider the exposure limits of the base material and coatings being ground (e.g., specific metals, lead-based paint).

Appropriate engineering controls: Use adequate general and/or local exhaust ventilation to keep airborne dust below the applicable exposure limits. See ANSI Z43.1; refer to OSHA 29 CFR 1910.94 (US) and Ontario OHSA / O. Reg. 833 (Canada).

Personal protective equipment (PPE):

Respiratory protection: Not normally required for the article. When grinding generates dust above the exposure limits, wear a NIOSH/CSA-approved particulate respirator (e.g., N95 or better) appropriate to the dust, considering any hazardous constituents of the base material or coatings (e.g., lead, cadmium, chromium). Follow OSHA 1910.134 / CSA Z94.4.

Eye protection: Wear impact-rated safety glasses with side shields or goggles; use a face shield for heavy grinding (ANSI Z87.1 / CSA Z94.3).

Skin / hand protection: Wear protective gloves to avoid abrasion and cuts; wear suitable protective clothing.

Other: Wear hearing protection if the operation is noisy. Avoid loose clothing and jewelry; tie back long hair.

Minimum recommended PPE: safety glasses - gloves - hearing protection - particulate respirator when dust exceeds exposure limits.

Section 9. Physical and Chemical Properties

Property	Value
Appearance	Solid manufactured article (resin-bonded abrasive wheel)

Property	Value
Color	Solid bonded disc with a depressed (offset) centre, typically dark brown, grey, blue or green depending on grain/bond; printed centre label, mounting hub and fibreglass scrim visible. Odourless.
Odor	Odorless; a slight odor may be noticed during use (heat on resin bond)
pH	Not applicable
Melting / freezing point	Not applicable (abrasive grain > 2000 C)
Flash point / flammability	Not flammable
Flammable / explosive limits	Not applicable (see Section 5 for dust)
Vapor pressure / vapor density / evaporation rate	Not applicable
Relative density	Grain Aluminum oxide ~3.9 g/cm3; zirconia alumina ~4.0-4.5 g/cm3; silicon carbide (if blended) ~3.2 g/cm3; finished-article density varies
Solubility in water	Insoluble
Partition coefficient / auto-ignition	Not applicable
Decomposition temperature	Phenolic resin bond decomposes above approx. 300 C

Section 10. Stability and Reactivity

Reactivity: Not reactive under normal conditions of use and storage.

Chemical stability: Stable.

Possibility of hazardous reactions: None known.

Conditions to avoid: Exceeding the maximum operating speed; impact or dropping; excessive heat.

Incompatible materials: Strong oxidizers and strong acids or bases on prolonged contact; none significant for the article as supplied.

Hazardous decomposition products: No hazardous decomposition products under normal storage and use. Thermal decomposition or combustion (e.g. wheel overheating / fire) of the phenolic bond can release carbon monoxide, carbon dioxide, oxides of the constituent metals, and small amounts of phenol, formaldehyde and other irritating aldehydes; fluoride-containing grinding aids can evolve trace hydrogen fluoride / fluoride fumes. Grinding dust may also contain hazardous decomposition or fume products of the base material and coatings being ground.

Section 11. Toxicological Information

Routes of exposure: Inhalation of dust generated in use; skin and eye contact; ingestion (unlikely).

Acute effects of exposure:

Inhalation: Breathing dust may cause irritation of the nose, throat and upper respiratory tract.

Skin contact: May cause mechanical / abrasive irritation; cuts or abrasions are possible from handling.

Eye contact: Dust or particles may cause mechanical / abrasive irritation and injury.

Ingestion: Not toxic. Swallowing fragments may cause gastrointestinal disturbance or obstruction.

Chronic health effects: Prolonged inhalation of respirable dust may cause adverse lung effects. Most of the dust generated in use is from the base material being ground; that hazard must be evaluated separately. Prolonged exposure to elevated noise may affect hearing.

Carcinogenicity: In as-supplied (article) form these wheels are not classified as carcinogenic. The abrasive grains - aluminum oxide, zirconia alumina (aluminum oxide + zirconium oxide) and non-fibrous silicon carbide - are not listed as carcinogens by IARC, NTP, ACGIH or OSHA. (Note: silicon-carbide WHISKERS are IARC Group 2A and fibrous SiC is IARC Group 2B [Monograph 111, 2017]; the grain here is the non-fibrous granular form, which is unclassified.) Calcium carbonate, barium sulfate, cryolite/fluorides and iron pyrite are not classified. Continuous-filament glass-fibre reinforcement is IARC Group 3 (distinct from certain special-purpose glass microfibres, IARC Group 2B, not used here). The cured phenolic bond is not classified; only on severe overheating can it release formaldehyde (IARC Group 1) and trace phenol. The significant carcinogenic concern is CRYSTALLINE SILICA / QUARTZ (CAS 14808-60-7): IF fillers or reinforcement in this product contain quartz, respirable silica liberated in grinding dust is carcinogenic to humans (IARC Group 1; NTP known human carcinogen; OSHA-regulated under 29 CFR 1910.1053) and prolonged inhalation can cause silicosis and lung cancer. Its presence in THIS product has NOT been confirmed - see Section 3 and attention flags. In practice the greatest carcinogenic risk in use usually comes from dust of the base material and any coatings ground (e.g. hexavalent chromium from stainless steel, nickel, welding metals), which must be assessed independently.

Sensitization: Not expected to be a skin or respiratory sensitizer; the resin bond is fully cured.

Germ cell mutagenicity / Reproductive toxicity: No data available; not expected for the article.

Acute toxicity values (component data):

- Aluminum oxide: LD50 oral, rat > 10,000 mg/kg; LC50 inhalation, rat > 2.3 mg/L/4 h
- Zirconium oxide: LD50 oral, rat > 5,000 mg/kg; LC50 inhalation, rat > 4.3 mg/L/4 h
- Silicon carbide: LD50 oral, rat > 2,000 mg/kg
- Calcium carbonate: LD50 oral, rat > 5,000 mg/kg
- Barium sulfate: LD50 oral, rat > 5,000 mg/kg
- Potassium tetrafluoroborate (KBF4): LD50 oral, rat > 5,000 mg/kg
- Cryolite / alkali aluminum fluorides: LD50 oral, rat > 5,000 mg/kg
- Cured phenolic resin bond, fibreglass reinforcement, iron pyrite: no acute toxicity data available (not expected to be acutely toxic in bound article form)

Section 12. Ecological Information

Ecotoxicity: No adverse effects on aquatic organisms are expected from the article. Consideration must be given to the potential environmental effects of the base material being processed.

Persistence and degradability: Biodegradation is not applicable to the inorganic components (abrasive grain, glass).

Bioaccumulative potential: Not expected; no data available.

Mobility in soil: Not expected (insoluble solid); no data available.

Other adverse effects: None known.

Section 13. Disposal Considerations

Dispose of in accordance with all applicable municipal, provincial/state and federal regulations. Local regulations may be more stringent than regional or national requirements.

The article itself is generally a non-hazardous solid waste. However, used product and collected grinding dust may be contaminated with the base material and coatings processed. It is the responsibility of the waste generator to characterize the waste (including any hazardous constituents such as metals) and determine the proper classification and disposal.

Section 14. Transport Information

Not regulated as dangerous goods for transport.

Regulation	UN No.	Proper shipping name	Class	Pack. Group	Marine pollutant
TDG (Canada)	None	Not regulated	None	None	No
US DOT (49 CFR)	None	Not regulated	None	None	No
IMDG / IATA	None	Not regulated	None	None	No

Transport in bulk (per MARPOL Annex II and the IBC Code): Not applicable - the product is transported only in packaged form.

Special precautions: None identified.

Section 15. Regulatory Information

Canada:

- WHMIS 2015 / Hazardous Products Regulations (SOR/2015-17): the product is a manufactured "article" and is not a hazardous product as supplied. This SDS is provided as a customer service and good practice.
- All ingredients are listed on the Canadian Domestic Substances List (DSL) or are exempt.

United States:

- OSHA Hazard Communication (29 CFR 1910.1200): article; not classified as hazardous.
- EPA TSCA: meets the definition of an article and is exempt from TSCA inventory requirements.
- EPA SARA 311/312 and 313: none.
- California Proposition 65: as supplied, this product is not known to contain Prop 65-listed chemicals above safe-harbor levels. NOTE: grinding/abrading operations and the base materials processed can generate listed substances (e.g., respirable crystalline silica, nickel, cobalt or chromium compounds); a Prop 65 warning may be required depending on the application.

Section 16. Other Information

Prepared by	Whitby Abrasives Inc.
Date of preparation	August 15, 2025
Date of last revision	None (new SDS)
Next review	Within 3 years, or sooner if significant new information becomes available.

Key to abbreviations: ACGIH, OSHA, PEL, TLV, TWA, STEL, OEL, PNOR, WHMIS, GHS, TDG, DOT, IARC, NTP, NIOSH, PPE, N/A.

References: ANSI B7.1; OSHA 29 CFR 1910.1200, 1910.134, 1910.94; WHMIS 2015 / HPR SOR/2015-17; Ontario OHSA and O. Reg. 833.

Disclaimer:

The information above is believed to be correct but is not represented to be all-inclusive and shall be used only as a guide. Whitby Abrasives Inc. shall not be held liable for any damage resulting from handling of, or contact with, the above product. This information relates only to the product designated herein and does not relate to its use in combination with any other material or process. It is the user's responsibility to ensure safe use and compliance with all applicable laws and regulations.