GHS SAFETY DATA SHEET

1. PRODUCT NAME AND COMPANY IDENTIFICATION

MANUFACTURER:
J.W. Hicks, Inc.
8955 Louisiana Street
Merrillville, Indiana 46410

TELEPHONE: **EMERGENCY**: (219)-736-2212
INFORMATION: (219) 736-2212

PREPARED BY:
LAB-eye-R™ Consultants

PRODUCT(S): ACN24
DATE: June 1, 2015
MSDS No.: 0004
REVISION No.: 4
LABEL No.:
RECOMMENDED USE: Solid, Preformed Refractory Shape

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

A solid preformed shape that is practically odorless. As-manufactured this product does not pose a possible fire hazard. Refractory particulates formed during installation or maintenance procedures including removal may be irritating to the skin, eyes and respiratory tract. Product is slightly combustible, but will only combust if in direct contact with flame or temperatures over 1000°F and will not initiate combustion.

GHS CLASSIFICATION

HEALTH: Eye & Skin Irritant - Category 4[2)] Respiratory Irritant - Category 4 Skin Sensitization – Category 4[2)]
ENVIRONMENTAL: Aquatic Toxicity & Ozone Depletion – n. a. **PHYSICAL:** n. a.

GHS Label

LABEL PICTOGRAMS: n. a. **Signal word:** n. a. **HAZARD STATEMENTS:** n. a.

PRECAUTIONARY STATEMENTS: Only dust from abraded surfaces or chipped particles created during installation or tear-out is likely to cause any physical hazards. Details for routes of entry in Section 11 and personal protection in Section 8 cover these potential risks and protections. Section 11 also lists toxicological information for minor impurities in some ingredients of this mixture. See Section 3 for warnings of possible chemical hazards caused during use at high temperatures and in various environments. Section 3 Note 2 and Section 16 is a discussion of HNOC per HazComm 2012.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredient	Weight %	CAS Number	ACGIH® TLV®	OSHA PEL
α-alumina, non fibrous	80 – 95	1344-28-1	1 mg/m^3	5 – 15 mg/m^3 2)
Alumino-silicate	1 – 5	66402-68-4	NE	NE
Carbon Black	1 – 5	1333-86-4	3 mg/m^3	3.5 mg/m^3
Graphite	1 – 5	7782-42-5	2 mg/m^3	2.5 mg/m^3 2)
Phenolic Resin	<1.0	108-95-2	19 mg/m^3	19 mg/m^3
Silicon (metal)	0.1 – 1	7440-21-3	NE*	5 mg/m^3 2)

At very high temperatures such as during refractory use, phase transformations may take place leading to other compounds (such as different mineralogical phases of complex alumino-silicates, calcium aluminates, silica (such as quartz, cristobalite, tridymite), etc.) triggering other applicable exposure guidelines. Also, refractory may become contaminated with other hazardous substances (e.g., metals, alkaline materials).

The specific processing and use of this contaminated refractory should be fully evaluated to assess all possible health hazards.

Note: 1) ACGIH® TLV® and OSHA PEL values given above are 8-hour, time-weighted averages for respirable dust only, unless otherwise specified. * (ACGIH®: Documentation and adopted TLV® were withdrawn due to insufficient data).).

2) HNOC: NE = None Established, and means that the substance is not assigned a specific TLV® or PEL. Substance regulated by OSHA as PNOR (PELs - 15 mg/m^3 total dust, 5 mg/m^3 respiratory fraction) and by ACGIH® as PNOC (TLV® - 10 mg/m^3 total dust, 3 mg/m^3 respirable fraction) and is considered a nuisance dust/particulate (see Section 16).

3) From ACGIH®, 2015 TLVs® and BEIs® Book. Copyright 2015 used with written permission (see Section 16).

4. FIRST AID MEASURES

INHALATION: Immediately remove victim from the adverse environment to fresh air and seek medical attention.

EYE CONTACT: Immediately flush with large amounts of running water as needed. If symptoms persist, seek medical attention.

SKIN CONTACT: If dust gets on skin, wash contaminated area with soap and water. Remove and wash contaminated clothing. If rash, irritation, or other symptoms persist, seek medical attention.

INGESTION: Ingestion is an unlikely route of exposure. If particles are ingested and victim is conscious, give 1-2 glasses of water or milk. Never give anything by mouth to an unconscious person. Leave decision to induce vomiting for a doctor, since particles may be aspirated into the lungs. Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

FLASH POINT: n. a. **FLASH POINT METHOD USED:** n. a. **FLAMMABLE LIMITS:** n. a.

LEL: n. a. **UEL:** n. a. **AUTOIGNITION:** n. a.

GENERAL HAZARD: This refractory product is noncombustible and does not pose any fire or explosion hazards, and will not ignite or contribute to the intensity of a fire.

EXTINGUISHING MEDIA: As appropriate for surrounding fire.

FIRE FIGHTING INSTRUCTIONS: As appropriate for surrounding fire.

FIRE FIGHTING EQUIPMENT: As appropriate for surrounding fire. Fire fighters should wear full turn out gear and full respiratory protection (self-contained breathing apparatus-SCBA). Wear SCBA with full facepiece, operated in positive pressure when fighting fires.

HAZARDOUS COMBUSTION PRODUCTS: n. a**.** **UNUSUAL FIRE AND EXPLOSION HAZARDS:** n. a**.**

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: If there is a spill of installation, maintenance, or tear-out material, the following precautions should be taken: Clean up using methods which avoid dust generation. If a vacuum is used, exhaust air should be filtered by a high-efficiency particulate air (HEPA) filter. Compressed air should not be used to clean up spills. During cleanup, skin and eye contact and inhalation of dust should be avoided. Provide local exhaust or dilution ventilation as required. When necessary, wear appropriate personal protective equipment (see Section 8) during clean-up. Collect material in a compatible and appropriately labeled container. For small dry spills, place material into clean dry container with a clean shovel and cover. Comply with federal, state, and local regulations regarding reporting of spills. Dispose of material from installation, maintenance, or tear-out in accordance with applicable federal, state, and local regulations (see Section 13).

7. HANDLING AND STORAGE

STORAGE TEMPERATURE AND PRESSURE: Not applicable.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in a dry area. Minimize dust generation and avoid inhalation and contact with dust during installation, maintenance, and/or tear-out. After handling of dust from these sources, wash exposed skin areas thoroughly. Wash clothing contaminated with dust.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

NOTE: Dust generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkali materials). Evaluation of specific processes should be performed by a qualified health and safety professional to determine appropriate controls and personal protective equipment to minimize exposure and contact.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION (CONTINUED)

RESPIRATORY PROTECTION: Use an appropriate NIOSH/MSHA-approved respirator if airborne contaminant concentrations exceed applicable OSHA PEL or ACGIH® TLV® limits (see Section 3 for PELs and TLVs®) or other industry standards or guidelines on exposure. If respiratory protection is required, all appropriate requirements as set forth in 29 CFR 1910.134 must be met. A qualified health and safety professional should be consulted for respirator selection.

PROTECTIVE GLOVES: Use as needed to prevent skin contact.

EYE PROTECTION: Use safety glasses and/or dust-proof safety goggles to prevent contact with dust.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Clothing which minimizes skin exposure.

ENGINEERING CONTROLS: Use local and/or general dilution ventilation, as needed, to reduce employee exposures to below applicable OSHA PELs and ACGIH® TLVs® (see Section 3 for PELs and TLVs®).

WORK/HYGIENE PRACTICES: Use good personal hygiene when handling this product. Wash hands after use, before smoking, or before using the toilet.

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	n. a.	**APPEARANCE:**	Solid, dry.
MELTING POINT:	>3000°F	**ODOR:**	None.
FREEZING POINT:	n. a.	**pH:**	n. a.
VAPOR PRESSURE:	n. a.	**SPECIFIC GRAVITY:**	3.0 – 3.3
VAPOR DENSITY:	n. a.	**SOLUBILITY IN WATER:**	Insoluble.
MOLECULAR WT.:	n. a.	**POUNDS PER GALLON:**	n. a.
% VOLATILES:	n. a.	**EVAPORATION RATE:**	n. a.

10. STABILITY AND REACTIVITY

STABILITY: Stable. **CONDITIONS TO AVOID:** n. a. **HAZARDOUS POLYMERIZATION:** Will not occur.

HAZARDOUS DECOMPOSITION: None. **INCOMPATIBILITY:** Strong acids and strong alkalis.

11. TOXICOLOGICAL INFORMATION

This product consists of a mixture of several components which vary in their toxic effects based on few studies for some components to numerous studies for others. Currently, the major ingredients are not considered to be toxic by any agency of the states or federal government or by any international agency based on animal testing and human epidemiological studies or due to insufficient data. The minor and trace ingredients have varying degrees of potential toxicity including carcinogenicity. Therefore, it is prudent to treat any dust created during installation, removal, and disposal with great care (see Sections 6 and 12) by protecting workers with appropriate personal protection devices (see Section 8) to achieve exposures as low as reasonably achievable based on the required OSHA PELS and the ACGIH® TLV® guidelines given in Section 3.

For alumino-silicate & α-alumina: The toxic dose threshold (TD_{Lo}) for the rat was reported as 90 mg/kg by the intrapleural route. Tumorigenic effects on the respiratory system were noted.

For carbon black: There is sufficient evidence in experimental animals with inadequate evidence in human epidemiologic studies. The evidence for carcinogenicity in animals comes from two chronic inhalation studies and two intratracheal instillation studies in rats showing significantly elevated rates of lung cancer in exposed animals. An inhalation study on mice did not show similar results. Epidemiologic data comes from three different group studies of carbon black production workers. Two studies, from the UK and Germany, with over 1,000 workers in each study group, showed elevated mortality from lung cancer in these workers. Another study of over 5,000 workers in the United States did not show elevated mortality from lung cancer. Newer findings of increased lung cancer mortality in an update from the UK study may suggest that carbon black could be a late-stage carcinogen. However, a more recent and larger study from Germany did not confirm this hypothesis.

11. TOXICOLOGICAL INFORMATION (CONTINUED)

PRIMARY ROUTES OF ENTRY

Inhalation: Yes. **Skin:** Yes. **Ingestion**: No. **Other:** No.

EYE CONTACT: Particulates cause slight to moderate irritation. Abrasive action of dust may damage eyes.

SKIN CONTACT: Particulates may cause slight irritation.

INHALATION: Inhalation of airborne particulates may cause moderate irritation of mucous membranes and coughing

INGESTION: Ingestion is unlikely. If ingested in sufficient quantities, may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain and diarrhea.

CHRONIC: The prolonged inhalation of dust may lead to silicosis, chronic bronchitis, emphysema and bronchial asthma. Atopic eczema, edema, etc. may result from regular contact.

CARCINOGENICITY: Carbon black: OSHA: No. IARC: Possible (Group 2B). NTP: NO.

SIGNS AND SYMPTOMS OF OVEREXPOSURE: Irritation, significant reduction in lung capacity, decreased chest expansion, dry cough, fatigue, dyspnea, cyanosis, loss of appetite, chest pain, total incapacity to work.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE (to particulates): Preexisting diseases or other conditions of the lungs, skin, eyes, and other mucous membranes. Persons who develop silicosis have greatly increased risks of developing tuberculosis. Exposure to dust combined with exposure to other potential carcinogens (such as cigarette smoking) may have a synergistic effect

12. ECOLOGICAL INFORMATION

Dust of as-manufactured refractory product has a low order of aquatic toxicity (rating TLm96: over 1000 mg/L; Acute and Chronic – n. a.), are insoluble, and are not very mobile. Therefore, it is not believed to be a significant threat to the environment if accidentally released on land or into water. However, dust and material generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkaline materials). Evaluation of dust and material from specific processes should be performed by a qualified environmental professional to determine if an environmental threat exists in the case of a release. Bioaccumulation, Persistence and Degradability, and Mobility statement: The constituents of this product are materials in mineral phases and quantities occurring naturally in typical rocky soils worldwide. Therefore, no negative environmental impacts are expected for the as-manufactured product.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: The as-manufactured refractory or its dust is not defined as a hazardous waste by 40 CFR 261. However, dust and material generated during maintenance and tear-out operations may be tainted with other hazardous substances (e.g., metals, alkali materials). Therefore, appropriate waste analysis may be necessary to determine proper disposal. Waste characterization and disposal and/or treatment methods should be determined by a qualified environmental professional compliant with applicable federal, state, and local regulations. Recommended European waste code (EWC): 17 01 07, 10 12 08, or 17 01 06 (HAZARDOUS WASTE). The proper code must be determined by the end user of this product based on conditions of use and conveyed to the waste disposal contractor. Nothing in this product as-made is considered to be HAZARDOUS WASTE.

14. TRANSPORTATION INFORMATION

DOT Proper Shipping Name (49 CFR 172.101):	n. a.
DOT Packing group (49 CFR 172.101):	n. a.
DOT Hazard Class (49 CFR 172.101):	n. a.
UN/NA Code (49 CFR 172.101):	n. a.
DOT Labels Required (49 CFR 172.101):	n. a.
DOT Placards Required (49 CFR 172.504):	n. a.

15. REGULATORY INFORMATION

CAA Title VI: This product does not contain nor was it manufactured using ozone-depleting chemicals.

TSCA Status: All components used in this product are on the Toxic Substances Control Act Inventory.

CERCLA Hazardous Substances: None.

SARA Title III:

Section 302 Extremely Hazardous Substances: None.

Section 311/312 Hazardous Categories: Immediate (Acute); {Delayed, Fire, Pressure, Radioactivity– NA}.

Section 313 Toxic Chemicals: None.

RCRA Status: Not regulated.

California Proposition 65: The California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) requires that the Governor of California publish a list of chemicals known to the State to cause cancer or reproductive harm. This product contains less than 5% carbon black, an ingredient known to the State of California to cause cancer. Components used in this product may contain minor trace amounts of inherent naturally occurring elements (such as, but not limited to, arsenic, cadmium) that are on the Governor's Proposition 65 list.

INTERNATIONAL

IARC:	Carbon black is classified as possibly carcinogenic to humans, Group 2B
CANADA (WHMIS):	All components used in this product are listed on the DSL Classes D2A and D2B.
AUSTRALIA:	All components in this product are listed on the AICS inventory.
EUROPEAN COMMUNITY:	All components in this product are listed on ECOIN.

16. OTHER INFORMATION

NFPA RATING

FLAMMABILITY: 0 **TOXICITY:** 1 **REACTIVITY:** 0

HMIS RATING

FLAMMABILITY: 0 **HEALTH:** 1 **REACTIVITY:** 0

All information appearing here is based on data believed to be reliable. However, **THE INFORMATION AND THE PRODUCT ARE PROVIDED WITHOUT ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO REPRESENTATIONS AND WARRANTIES REGARDING ACCURACY OR CORRECTNESS, THE EFFECTS OF USING THE PRODUCT, THE RESULTS TO BE OBTAINED, FITNESS FOR A PARTICULAR PURPOSE, OR THE SAFETY OR TOXICITY OF THE PRODUCT**. It is the users' responsibility to determine the safety, toxicity, and suitability for their use of the product and to comply with all applicable statutes and regulations. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control. For this and other reasons, J. W. Hicks, Inc. and the preparer listed in Section 1 does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of, relating to, or in any way connected with the handling, storage, use, or disposal of this product. This MSDS is not intended as a license to operate under, or a recommendation to infringe on, any patents. Appropriate warnings and safe handling instructions should be provided to handlers and users.

LEGEND

ACGIH®	American Conference of Governmental Industrial Hygienists®
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Services
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
ECOIN	European Core Inventory
EPA	Environmental Protection Agency
GHS	United Nations' Globally Harmonized System of Classification and Labelling of Chemicals
HNOC	hazards not otherwise classified
HAZCOMM2012	OSHA's Hazard Communication Standard 2012
IARC	International Agency for Research on Cancer
LC_{50}	Lethal concentration (50% kill)
LC_{Lo}	Lowest published lethal concentration
LD_{50}	Lethal dose (50% kill)
LD_{Lo}	Lowest published lethal dose
MSHA	Mine Safety and Health Administration
NE	None established
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PNOC	Particulates Not Otherwise Classified
PNOR	Particulates Not Otherwise Regulated
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TD_{Lo}	Lowest published toxic dose
TLm96	(Acute) Toxic Level for fathead minnows – 96 hour exposure
TLV®	Threshold Limit Value®
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Material Information System (Canada)

UNITS OF MEASURE

atm	atmosphere
cm	centimeter
gm	gram
in	inch
kg	kilogram
L	liter
lb	pound
m^3	cubic meter
mg	milligram
ml	milliliter
mm	millimeter
ppb	part per billion
ppm	part per million
mppcf	millions of particles per cubic foot
µ	micron
µg	microgram

ABBREVIATIONS

n. o. s.	not otherwise specified
n. a.	not applicable

ADDITIONAL NOTES

COPYRIGHT COMPLIANCE: View ACGIH®'s *Policy Statement on the Uses of TLVs® and BEIs®* and *Statement of Position Regarding the TLVs® and BEIs®* at the following links:

Policy Statement on the Uses of TLVs® and BEIs® – http://www.acgih.org/TLV/PolicyStmt.htm

Statement of Position Regarding the TLVs® & BEIs® – http://www.acgih.org/TLV/PosStmt.htm

The ACGIH® TLVs® are cited in this and all other documents of J. W. Hicks, Inc. solely as GUIDELINES for exposure and not for precise legal limits. These guidelines are intended for use in the practice of industrial hygiene, to be interpreted and applied only by a person trained in this discipline. They are not developed for use as legal standards and ACGIH® does not advocate their use as such. If the OSHA PEL is a lower level, it **must** be followed b y law. (See more on the ACGIH® TLVs® at acgih.org for more complete details).

(NOTE: Use of TLVs® and the above language were approved by express written consent of ACGIH® on January 18, 2011 via e-mail to LAB-eye-R™ Consultants).

OSHA PEL COMPLIANCE: Although OSHA is currently enforcing exposure limits in Tables Z-1, Z-2, and Z-3 of 29 CFR 1910.1000 which were in effect before 1989, violations of the "general duty clause" as contained in Section 5(a) (1) of the Occupational Safety and Health Act may be considered when worker exposures exceed the 1989 PELs for the 164 substances that were PNOR (PELs - 15 mg/m^3 total dust, 5 mg/m^3 respiratory fraction). Therefore, OSHA PELs for the substances for which OSHA PELs were vacated on June 30, 1993 in this mixture (α-alumina, non fibrous) are being used in Section 3 to indicate willingness to comply with the "general duty clause" as noted above. It is possible these vacated PELs may be in effect in the future.

[It should be noted that, on August 1, 1988, regarding the "Proposed Rule on Air Contaminants" (29 CFR 1910, Docket No. H-020), NIOSH also conducted a limited evaluation of the literature and concluded that the documentation cited by OSHA was inadequate to support the proposed PEL (as an 8-hour TWA) of 10 mg/m^3 for α-alumina, magnesium oxide, PNOR, and rouge (iron oxide). NIOSH questioned whether the PELs proposed (and listed here) for these substances were adequate to protect workers from recognized health hazards. These more restricted PELs may prove to be inadequate before scheduled update of this document may be prepared.]

GHS SDS PREPARATION DATE: June 1, 2015 Revision Number 4.