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MATERIAL SAFETY DATA SHEET CRUSHED FELDSPAR ((K₂O)(Na₂O)*Al₂O₃*6SiO₂)

1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

1.1 PRODUCT IDENTIFIERS:

Product Name: Feldspar ((K₂O)(Na₂O)*Al₂O₃*6SiO₂), Trade Names: Crushed Feldspar

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST
Identified Uses: Glass, ceramic,

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET Company: Kormad Madnecilik. İnş. Haf. Taah. San. Tic. Ltd. Şti.

1.4. EMERGENCY TELEPHONE NUMBER +90256 7115420

2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE No Hazardous Product as specified in Directive 67/548/EEC.

2.2 LABEL ELEMENTS Precautionary Statements: P260 Do not breathe dust/fume/gas/mist/vapours/spray. P285 In case of inadequate ventilation wear respiratory protection.

2.3 OTHER HAZARDS None

2.4 Hazard Identification This product contains respirable quartz as an impurity and therefore is classified as STOT RE2 according to criteria defined in the Regulation EC 1272/2008 and harmful according to criteria defined in Directive 67/548/EEC due to the potential for generation of airborne respirable crystalline silica. Depending on the type of handling and use (e.g. grinding, drying), airborne respirable crystalline silica may be generated. Prolonged and/or massive inhalation of respirable crystalline silica dust may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of silicosis are cough and breathlessness. Occupational exposure to respirable crystalline silica dust should be monitored and controlled. This product should be handled with care to avoid dust generation.

2.4.1 Skin Contact The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene



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practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. • Open cuts, abraded or irritated skin should not be exposed to this material. • Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

2.4.2 Eye Contact Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals

2.4.3 Ingestion The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern. Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract

2.4.4 Inhalation The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress. • Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual. • Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. • Effects on lungs are significantly enhanced in the presence of respirable particles. Overexposure to respirable dust may produce wheezing, coughing and breathing difficulties leading to or symptomatic of impaired respiratory function. • Acute silicosis occurs under conditions of extremely high silica dust exposure particularly when the particle size of the dust is small. It differs greatly from classical silicosis both clinically and pathologically. The disease is rapidly progressive with diffuse pulmonary involvement developing only months after the initial exposure and causing deaths within 1 to 2



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years. It is often complicated by an associated tuberculosis. The lungs of victims contain no classical silicotic nodules or only a few, microscopic abortive nodules, whereas the air spaces are diffusively filled and distended with silica-containing, lipoprotein paste in which degenerating and necrotic macrophages are sometimes discernible - the condition is sometimes described as alveolar lipoproteinosis. The uptake of silica particles by macrophages and lysosomal incorporation, is followed by rupture of the lysosomal membrane and release of lysosomal enzymes into cytoplasm of the macrophage. This causes the macrophage to be digested by its own enzymes and after lysis the free silica is released to be ingested by other macrophages thus continuing initiate collagen formation in the lung tissue producing the characteristic nodule found in classical (chronic) silicosis.

2.4.5 Long term effects Harmful: danger of serious damage to health by prolonged exposure through inhalation. Serious damage (clear functional disturbance or morphological change which may have toxicological significance) is likely to be caused by repeated or prolonged exposure. As a rule the material produces, or contains a substance which produces severe lesions. Such damage may become apparent following direct application in subchronic (90 day) FELDSPAR toxicity studies or following sub-acute (28 day) or chronic (two-year) toxicity tests. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Chronic symptoms produced by crystalline silicas included decreased vital lung capacity and chest infections. Lengthy exposure may cause silicosis a disabling form of pneumoconiosis which may lead to fibrosis, a scarring of the lining of the air sacs in the lung. Symptoms may appear 8 to 18 months after initial exposure. Smoking increases this risk. Classic silicosis is a chronic disease characterised by the formation of scattered, rounded or stellate silica-containing nodules of scar tissue in the lungs ranging from microscopic to 1.0 cm or more. The nodules isolate the inhaled silica particles and protect the surrounding normal and functioning tissue from continuing injury. Simple silicosis (in which the nodules are less than 1.0 cm in diameter) is generally asymptomatic but may be slowly progressive even in the absence of continuing exposure. Simple silicosis can develop in complicated silicoses (in which nodules are greater than 1.0 cm in diameter) and can produce disabilities including an associated tuberculous infection (which 50 years ago accounted for 75% of the deaths among silicotic workers). Crystalline silica deposited in the lungs causes epithelial and macrophage injury and activation. Crystalline silica translocates to the interstitium and the regional lymph nodes and cause the recruitment of inflammatory cells in a dose dependent manner. In humans, a large fraction of crystalline silica persists in the lungs. The question of potential carcinogenicity associated with chronic inhalation of crystalline silica remains equivocal with some studies supporting the proposition and others finding no significant association. The results of recent epidemiological studies suggest that lung cancer risk is elevated only in those



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patients with overt silicosis. A relatively large number of epidemiological studies have been undertaken and in some, increased risk gradients have been observed in relation to dose surrogates - cumulative exposure, duration of exposure, the presence of radiographically defined silicosis, and peak intensity exposure. Chronic inhalation in rats by single or repeated intratracheal instillation produced a significant increase in the incidences of adenocarcinomas and squamous cell carcinomas of the lung. Lifetime inhalation of crystalline silica (87% alpha-quartz) at 1 mg/m³ (74% respirable) by rats, produced an increase in animals with keratinising cystic squamous cell tumours, adenomas, adenocarcinomas, adenosquamous cell carcinomas, squamous cell carcinoma and nodular bronchiolar alveolar hyperplasia accompanied by extensive subpleural and peribronchiolar fibrosis, increased pulmonary collagen content, focal lipoproteinosis and macrophage infiltration. Thoracic and abdominal malignant lymphomas developed in rats after single intrapleural and intraperitoneal injection of suspensions of several types of quartz. Some studies show excess numbers of cases of scleroderma, connective tissue disorders, lupus, rheumatoid arthritis chronic kidney diseases, and end-stage kidney disease in workers NOTE: Some jurisdictions require health surveillance be conducted on workers occupationally exposed to silica, crystalline. Such surveillance should emphasise • demography, occupational and medical history and health advice • standardised respiratory function tests such as FEV₁, FVC and FEV₁/FVC • standardised respiratory function tests such as FV₁, FVC and FEV₁/FVC • chest X-ray, full size PA view • records of personal exposure Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion (exertional dyspnea), increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Other signs or symptoms include altered breath sounds, diminished lung capacity, diminished oxygen uptake during exercise, emphysema and pneumothorax (air in lung cavity) as a rare complication. Removing workers from possibility of further exposure to dust generally leads to halting the progress of the lung abnormalities. Where worker-exposure potential is high, periodic examinations with emphasis on lung dysfunctions should be undertaken Dust inhalation over an extended number of years may produce pneumoconiosis.. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence. It is further classified as being of noncollagenous or collagenous types. Noncollagenous pneumoconiosis, the benign form, is identified



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by minimal stromal reaction, consists mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible. Chronic symptoms include decreased vital lung capacity and chest infections.

2.4.6 Adverse Environmental Effects Presents no particular risk to the environment, provided the disposal requirements (see section 13) and national or local regulations are complied with 2.3.7
Physical and chemical hazards : No particular fire or explosion hazard 2.4 Additional Information
Caution - substance not yet tested completely Full text of R-, H- and EUH-phrases: see section 16

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 SUBSTANCES Mineral Name FELDSPAR CAS number : 68476-25-5 EINECS No 238-878-4 EINECS name FELDSPAR Content %100 Clasification Xn; STOT-Repeated.Exp.Cat.2 H373

4. FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 General information · Show this safety data sheet to the doctor in attendance.

4.1.2 Following inhalation · If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. · Keep warm and rested. · Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. · Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. · Transport to hospital, or doctor.

4.1.3 Following skin contact · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

4.1.4 Following eye contact · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. · Seek medical attention without delay; if pain persists or recurs seek medical attention. · Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

4.1.5 Following ingestion · Immediately rinse mouth with water. · Immediately give a glass of water. · First aid is not generally required. · If in doubt, contact a Poisons Information Centre or a doctor.

4.1.6 Self-protection of the first aider · Protect skin and eyes. · Wear protective cloths.



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4.1.7 Notes for the doctor · Treat symptomatically. · Exposed workers should be medically examined regularly with emphasis on respiratory system. · Individuals with pulmonary disease should be precluded from exposure.

4.2 Indication of any immediate medical attention and special treatment needed Keep the injured under health care for bronchitis, trachea and lung edemas. · Aggravating harmful effects can take place.

5. FIRE FIGHTING MEASURES

5.1 General Information and Flammable Properties Noncombustible. · Not considered a significant fire risk, however containers may burn.

5.2 Extinguishing media: There is no restriction on the type of extinguisher which may be used. · Use extinguishing media suitable for surrounding area.

5.3 Special hazards arising from the product Decomposes on heating and produces acrid and toxic fumes of: silicon dioxide (SiO₂). Decomposition may produce toxic fumes of: metal oxides. · May emit poisonous fumes.

5.4 Advice for fire-fighters When feldspar and silica dust is dispersed in air, firefighters should wear inhalation protection as hazardous substances from the fire may be adsorbed on the silica particles. When heated to extreme temperatures, (>1700 °C) amorphous silica can fuse. · Alert Fire Brigade and tell them location and nature of hazard. · Wear breathing apparatus plus protective gloves for fire only. · Prevent, by any means available, spillage from entering drains or water courses. · Use firefighting procedures suitable for surrounding area. · DO NOT approach containers suspected to be hot. · Cool fire exposed containers with water spray from a protected location. · If safe to do so, remove containers from path of fire. · Equipment should be thoroughly decontaminated after use.

5.5 Additional information · If involved in a fire, keep containers cool with water spray. · If safe to do so, remove containers from path of fire. Consider evacuation.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures · Breathing apparatus. · See Section 8

6.2 Environmental precautions · See section 12



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6.3 Methods and material for containment and cleaning up

6.3.1 For containment Minor Spills: Remove all ignition sources.· Clean up all spills immediately.· Avoid contact with skin and eyes.· Control personal contact by using protective equipment.· Use dry clean up procedures and avoid generating dust.· Place in a suitable, labeled container for waste disposal.· Major Spills: Moderate hazard. CAUTION: Advise personnel in area.· Alert Emergency Services and tell them location and nature of hazard.· Control personal contact by wearing protective clothing.· Prevent, by any means available, spillage from entering drains or water-courses. Recover product wherever possible.· IF DRY: Use dry clean up procedures and avoid generating dust.· Collect residues and place in sealed plastic bags or other containers for disposal. ALWAYS: Wash area down with large amounts of water and prevent runoff into drains. If contamination of drains or waterways occurs, advise Emergency Services.

6.3.2 For cleaning up · Clean mechanically.

6.3.3 Other information · Keep in suitable, closed containers for disposal. 6.4 Reference to other sections · See Section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Protective measures Personal preventions Page No: 9/22 Material Safety Data Wear protective clothing when risk of exposure occurs.· Use in a well-ventilated area.· Prevent concentration in hollows and sumps.· DO NOT enter confined spaces until atmosphere has been checked.· DO NOT allow material to contact humans, exposed food or food utensils.· Avoid contact with incompatible materials.· When handlings, DO NOT eat, drink or smoke.· Keep containers securely sealed when not in use.· Avoid physical damage to containers.· Always wash hands with soap and water after handling.· Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice.· Observe manufacturer's storing and handling recommendations.· Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained. Fire preventions See section 5· Dust generation preventions: Check the amounts in atmosphere where the people work in accordance with the professional exposure limits. Environmental precautions: Ensure adequate ventilation.·



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7.1.2 Advice on general occupational hygiene · Do not to eat, drink and smoke in work areas; · Wash hands after use; · Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities Suitable container: Polyethylene or polypropylene container. Check all containers are clearly labeled and free from leaks. ♣ Storage incompatibility: Silicas: react with hydrofluoric acid to produce silicon tetra fluoride gas ♣ react with xenon hexafluoride to produce explosive xenon trioxide ♣ reacts exothermically with oxygen di fluoride, and explosively with chlorine ♣ trifluoride (these halogenated materials are not commonplace industrial materials) and other fluorine-containing compounds may react with fluorine, chlorates ♣ are incompatible with strong oxidizers, manganese trioxide, chlorine ♣ trioxide, strong alkalis, metal oxides, concentrated orthophosphoric acid, vinyl acetate FELDSPAR may react vigorously when heated with alkali carbonates. ♣ Metals and their oxides or salts may react violently with chlorine trifluoride ♣ and bromine trifluoride. These trifluoride are hypergolic oxidizers. They ignite on contact (without ♣ external source of heat or ignition) with recognized fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition. The state of subdivision may affect the results. ♣ Package Material Incompatibilities: No data available

7.3 Specific end uses · See section 1.2 8. EXPOSURE CONTROLS / PERSONAL PROTE

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

8.1 CONTROL PARAMETERS OCCUPATIONAL EXPOSURE LIMITS (OEL) – Total inhalable silica dust: Long term 0.1 mg/m³ EXPOSURE CONTROLS: Use of a laboratory coat is suggested. Safety goggles or safety glasses with side shields are required if there is any possibility of chipping or dust creation. Avoid breathing dust when generated. Wash hands immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES APPEARANCE : Clear geometric shapes, no odour. FLASH POINT: Not Applicable C FLAMMABILITY: Not Applicable °BOILING POINT (760mm Hg) 2230 C EXPLOSIVE PROPERTIES: Not Applicable °MELTING POINT: 1710 C °SPECIFIC GRAVITY: 2.60-2,65 g/mL VAPOUR PRESSURE: Negligible at 25 SOLUBILITY IN WATER: Practically soluble. pH IN AQUEOUS SOLUTION: Not determined

9.2 OTHER SAFETY INFORMATION None



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10. STABILITY AND REACTIVITY

10.1 Reactivity : See section 7.2

10.2 Chemical stability • Stable at ambient temperature and under normal conditions of use • Presence of incompatible materials. • Product is considered stable. • Hazardous polymerisation will not occur.

10.3 Possibility of hazardous reactions · See section 7.2

10.4 Conditions to avoid: · Dust generation.

10.5 Incompatible materials: · Dissolves readily in hydrofluoric acid, forming silicon tetra fluoride, a corrosive gas. · Reacts violently with powerful oxidizers such as chlorine trifluoride, manganese trifluoride, oxygen di fluoride, vinyl acetate, and certain other fluorine-containing compounds. · Will be attacked by strong alkalis.

10.6 Hazardous decomposition products: Decomposition may produce toxic fumes of: · silicon dioxide (SiO₂) · metal oxides

10.7 Hazardous polymerization: · Has not been reported.

11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS Particular care should be exercised when machining and creating dust or particles. TOXIC DOSE - LD50 3160 mg/kg (oral, rat)

CARCINOGENICITY: No evidence of carcinogenic properties. MUTAGENICITY/TERATOGENICITY: No evidence of reproductive effects.

12. ECOLOGICAL INFORMATION

12.1 TOXICITY No Data

12.2 PERSISTENCE AND DEGRADABILITY No Data

12.3 BIOACCUMULATIVE POTENTIAL No Data

12.4 MOBILITY IN SOIL No Data

12.5 RESULTS OF PBT AND vPvB ASSESSMENT Not required or conducted



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12.6 OTHER ADVERSE AFFECTS No environmental hazard is anticipated provided that the material is handled and disposed of with due care and attention.

13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS Should be disposed of carefully in designated glass disposal bins.

14. TRANSPORT INFORMATION

14.1 UN NUMBER: None

14.2 UN PROPER SHIPPING NAME: Not subject to transportation regulations.

14.3. TRANSPORT HAZARD CLASS: None **14.4. PACKING GROUP:** None

14.5 ENVIRONMENTAL HAZARDS: None

14.6. SPECIAL PRECAUTIONS FOR USER: None

14.7 TRANSPORT IN BULK MARPOL / IBC: No Data

15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS / LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE TSCA: Not determined

16. OTHER INFORMATION REVISION DATE:

31th December 2017 Kormad Madencilik. The above information is believed to be correct but does not purport to be all inclusive and must be used only as a guide.