Material Safety Data Sheets (MSDS)	Number:00		051402016/00
Scope: Farhikhtegan Zarnam Industrial and Research Group	Date: 2022/09/20		

1- Chemical Product and Company Identification

Product Name:	**Modified Starch**
CAS#:	**63798-35-6**
RTECS:	**-**
CI#:	**-**
Chemical Name:	**Acetylated distarch Adipate**
Chemical Formula:	**$(C_6H_{10}O_5)n$**

2- Composition and Information on Ingredients

				NFPA
				

3- Hazards Identification

Potential Acute Health Effects:	**Eyes: May cause slight irritation** **Skin: May cause slight skin irritation** **Inhalation: May cause irritation of respiratory tract** **Ingestion: Health injuries are not known or expected under normal use.**
Potential Chronic Health Effects:	**-**

4- First Aid Measures

Eye Contact:	**Rinse cautiously with water for several minutes.**	
Skin Contact:	**Rinse skin with water/shower.**	
Serious Skin Contact:	**-**	
Inhalation:	**Provide fresh air.**	
Ingestion:	**Health injuries are not known or expected under normal use.** **In case of having ingested an excess or if there is irritation, do not induce vomiting. In case of unconscious person, do not administer anything orally.** **Note: In case of persistent discomfort, receive immediate medical attention and, if necessary, special treatment.**	

5- Fire and Explosion Data

Flammability of the Product:	**The dust of this product may cause explosion and emit toxic gases if ignited by static charges or other source of ignition. The conditions under which this may occur are: concentration in suspension with air, ignition point, particle size and dust moisture. Avoid using this product with flames, electric arcs, static electricity and / or welding. Make sure that the handling equipment is grounded. Always keep the area clean, avoiding the formation of dust films.**	

Explosion Hazards in Presence of Various Substances:	-	
Fire Fighting Media and Instructions:	**Dry chemical dust extinguisher, foam, water mist, carbon dioxide.** **Use a self-contained breathing apparatus (SCBA) equipped with full face mask and operated under pressure as required (or in another positive pressure mode), with suitable protective clothing. Evacuate the area and fight fire from a safe distance.**	

6- Accidental Release Measures

Small Spill:	**Use a simple mask to protect dust, gloves and eye protection equipment. Contain the material in appropriate container or containers. Eliminate possible sources of ignition.**
Large Spill:	**Lift and dispose carefully without creating dust. Sweep / vacuum and dispose in a suitable container. Dust collectors must be equipped with safety devices that prevent or reduce the risk of explosion.**

7- Exposure Controls/Personal Protection

Engineering Controls:

Always provide effective general ventilation and, when necessary, ventilation with local suction, to keep dust away from workers and prevent routine inhalation. Ventilation should be adequate to maintain the atmosphere of the workplace environment below the exposure limits indicated in the MSDS.

Personal Protection:

Skin/eye/face Protection: Use nitrile or rubber protective gloves, and safety glasses.
Respiratory Protection: In case of exceeding the exposure limits, provide preferably mechanical local ventilation. Use dust mask.

8- Disposal Considerations

Waste Disposal:	**Dispose of unused content, in accordance with national and local regulations.** **Discard the unused container, in accordance with national and local regulations. Be sure to use duly authorized waste management companies, if applicable.**

9- Handling and Storage

Precautions:	**Use personal protective equipment for handling (dust mask, gloves and lenses). Use with adequate ventilation. Avoid dust formation. Keep containers closed when not in use. Avoid any possible source of ignition. It is recommended to wash your hands before and after handling the product.**
Storage:	**Fine dust with ability to form a cloud, which presents a danger of explosion. Keep away from sources of ignition. Store preferably in a cool and dry place, with adequate ventilation. Keep away from incompatible materials such as: oxidizing chemicals, acids, iodine and alkalis. Avoid the formation of explosive atmospheres.**

10- Physical and Chemical Properties

Physical state and appearance:	**Solid, Fine Powder**
Odor:	**Odorless**
Taste:	**Bland**
Molecular Weight:	**$(162)_n$**
Color:	**White**

Boiling Point:	**Not available**
Melting Point:	**Not available**
Bulk Density:	**600 – 650 kg/m^3**
Volatility:	**Not available**
Ionicity (in Water):	**Not available**
pH	**5.5 - 7**
Solubility:	**insoluble in water**

11- Ecological Information

Eco toxicity:	**Avoid uncontrolled release to the environment**
BOD5 and COD	-
Products of Biodegradation:	-
Toxicity of the Products of Biodegradation:	-
Special Remarks on the Products of Biodegradation:	-

12- Stability and Reactivity Data

Stability:	**The product is stable under storage at normal ambient temperatures.**
Instability Temperature:	-
Conditions of Instability:	**Avoid generation of dust, confinement, oxygen source and source of ignition.**
Incompatibility with various substances:	**Oxidizing agents, acids, iodine and fuels.**
Corrosivity:	-

13- Toxicological Information

Toxicity to Animals:	**Avoid uncontrolled release to the environment**
Other Toxic Effects on Humans:	-

14- Other Information

ACGIH
TLV TWA: 10 mg/m^3 (total) TWA: 3 mg/m^3 (inhalable)
OSHA
PEL TWA: 15 mg/m^3 (total) TWA: 5 mg/m^3 (inhalable)
Minimum explosive concentration (CME): 70 mg/L
Minimum temperature of inflammation as layer (TMIc): >390°C
Minimum temperature of inflammation as cloud (TMIc): 390°C
Minimum energy of inflammation (EMI): > 0.06 J
The oxidation of starch may produce oxalic acid and carbon oxides. The combustion can generate dioxide and carbon monoxide, nitrogen and water

15- Transport Information

DOT Classification: -
Special Provisions for Transport: -

16- References

Sciencelab.com
Ingredion.com
Echemi.com