



RISE EARTH INFRACON PVT LTD

**Raipur - 492001
CHATTISGARH, INDIA**

Presents

**(CSDS)
COMMON SODIUM DISILICATE**

**PRODUCT CHARACTERISTICS
&
APPLICATIONS DATA**

USES OF CSDS



- 1. Complex Sodium Disilicate (CSDS) is primarily used as a detergent builder, making formulations phosphate-free and eco-friendly.**
- 2. It also acts as a substitute for STPP in detergent powder production, particularly for phosphatefree washing powder, and can be used in various detergent formulations, including concentrated and ordinary powders.**
- 3. Environmentally friendly in every way**
- 4. Superior function and strong calcium exchange ability, superior to STPP**
- 5. High PH buffering capacity**
- 6. Competitive pricing to save money**
- 7. Low density and free flow: 0.3-0.6g/ml all around. (Customer requirement)**
- 8. Does not readily collect moisture from the air to form a cake.**
- 9. Especially ideal for high tower sprayers and dry mix or mixing.**
- 10. Be utilised in the same way as STPP in the manufacturing process, with no changes to the equipment. utilised in the same way as STPP in the manufacturing process, with no changes to the equipment.**
- 11. Additionally, CSDS is used in textile dyeing and printing, industrial cleaning, and even in some ceramic applications.**

USES OF CSDS



a. Detergent Industry:

1. Phosphate-Free Detergent Builder: CSDS is a key ingredient in producing phosphate-free detergents, a growing trend due to environmental concerns.

2. Calcium and Magnesium Hardness Reduction: It helps reduce calcium and magnesium hardness in washing water, improving detergent performance and making cleaning more effective, according to ScienceDirect.com.

3. STPP Replacement: CSDS can replace STPP (Sodium Tripolyphosphate) in the detergent manufacturing process without requiring changes to the existing equipment.

4. Improved Detergency: CSDS enhances the detergency ability of detergents, making them more effective at removing dirt and stains.

b. Textile Industry:

1. Dyeing and Printing Auxiliary: It can be used as a chelating agent for pre-cleaning grease and dirt, and as a stabilizer for hydrogen peroxide bleach.

3. Other Applications: -Industrial Cleaning: CSDS can be used in industrial cleaning agents, such as metal cleaning agents (Degreasing agent) and heavy oil cleaning agents. -Ceramics: It can be used as a deflocculant in the casting process to reduce viscosity and water usage in ceramics production.

3. Construction industry: Sodium silicate liquid is used with Ready mix concrete to get water proofing property and quicker settling

4. CSDS is also used in paper production, as a corrosion inhibitor, and in some agricultural applications.

COMPARISON OF CSDS, ZEOLITE & STPP



COMPLEX SODIUM DI SILICATE				
Function Attributes and their Results Comparisons with CSDS				
Product Name	CSDS	Green CSDS	ZEOLITE	STPP
Specification belongs to	China	India	India	Ukraine
Functional Attributes				
Appearance	Fine Powder	Fine Powder	Fine Powder	Crystalline Powder
Ca exchange ability (mg of CaCO ₃ per gm of various Softners)	400	400	270 (Mg exchange is low)	340
Water softening Capacity (mg of CaCO ₃ per gm of softner taking 3% dosage of Softner in Detergent Powder / Cake	12000	12000	8550	10200
35 gm detergent powder in 7 ltrs of water - TDS removal capacity at a dosage of 3 % (of 35 gm)				
pH	<=12	12	11	10
Humidity	<=5%	2-3%	4.34	1.2
Whiteness	>=80%	95	92	92.5
Visual Specific Gravity (Bulk Density)	0.35-0.65	0.2-0.3	0.3-0.4	0.7
Na ₂ O	35%	33%	16.47%	N.A
P ₂ O ₅ Content	Nil	Nil	Nil	56%
Solubility in water	Partially Soluble	Total soluble	Insoluble	Partially soluble
Emulsifying Property	Good emulsifier	Good emulsifier	No emulsification	Partially Emulsifier
Degreasing Property	Good Degreaser	Good Degreaser	Not Degreaser	Partially Degreaser
Detergency Property	Increases Detergency	Increases Detergency	Increases Detergency	Increases Detergency
Foam Booster	Increases Foam	Increases Foam	Increases Foam	Increases Foam

PROPERTIES OF CSDS IN DETERGENT CAKE AND POWDER



Detergent Cake	Detergent Powder
In Detergent Cake CSDS gives more cleaning action , in Hard Water containing Ca & Mg dissolved Salts	CSDS will give more brightness & shine in white and colored powder
CSDS Absorbs more moisture than STPP.	CSDS Absorbs more moisture than STPP.
Detergent Cake appearance will be more pluffy, more shining, more smooth than STPP content.	CSDS gives more pluffiness as compared to STPP.
Detergent Cake will be eco friendly as there is no phosphate content.	CSDS gives more emulsification, cleaning action more foam as compared to STPP
It is economical than STPP	Detergent Powder will be eco friendly as there is no phosphate content.
Zeolite does not work in hard water containing dissolved Magnesium Salt. whereas CSDS works	It is economical than STPP
Environmentally sustainable and green process of extraction using rice husk ash.	Zeolite does not work in hard water containing dissolved Magnesium Salt. whereas CSDS works
Lower polymerized silicate polymers hence better dispersion and solubility as compared to conventional grades	Environmentally sustainable and green process of extraction using rice husk ash.
Mining of quartz's can be reduced as rice husk ash is a better alternative for silica source.	Lower polymerized silicate polymers hence better dispersion and solubility as compared to conventional grades.
It is a Good Foam Booster giving good detergency Property	Mining of quartz's can be reduced as rice husk ash is a better alternative for silica source.

FAQ OF CSDS



Q.No.1. Whether Product is Powder or Liquid ?

Ans. It is White Crystalline Powder.

Q.No.2. How CSDS is made?

Ans. It is made by reacting rice husk ash with alkali and then spray drying.

Q.No.3. Uses of CSDS?

Ans. It enhance the foam and detergency of the product. It is good emulsifying agent. It is having good degreasing property. It is water softener. It is good water absorber. It make detergent powder light.

Q.No.4. what is pH of CSDS?

Ans. Between 10-12.

Q.No.5. Molecular Formulae of CSDS?

Ans. $m\text{Na}_2\text{O} \cdot n\text{SiO}_2 \cdot x\text{H}_2\text{O}$

Q.No.6. Whether it is Green and Sustainable Product?

Ans. It is made from Rice Husk and after complete reaction it goes back to sea or mother earth. Hence it is green and sustainable product.

Q.No.7. Is it a generalised product available in market?

Ans. No.

Q.No.8. How much we replace STPP & Zeolite.

Ans. 100 % Replacement

FAQ OF CSDS



Q.No.9. Whether it is Cheaper than STPP and Zeolite.

Ans. Yes, It is cheaper than STPP and Zeolite. Due to Zeolite has CEC Value of 270 whereas, CSDS has CEC value is 400. Hence, 0.675 kg CSDS will required in place of 1 kg of Zeolite required and STPP has CEC value of 340 Hence, 0.85 kg CSDS will required in place of 1 kg of STPP required.

Q.No.10. What is the product shelf life?

Ans. Shelf Life of CSDS is 2-2.5 years.

Q.No.11. How to store?

Ans. Store in Ambient Condition between 20 °C to 50 °C temperature.

Q.No.12. How much does the price fluctuate?

Ans. Price of Rice Husk is almost constant but price of alkali may affect the cost of CSDS

Q.No.13. Is it available round the year?

Ans. Yes

Q.No.14. Does the temperature affect product quality?

Ans. No

Q.No.15. What all products can be made using CSDS?

Ans. CSDS is used to manufacture Detergent Powder, Detergent cake, Dishwash Bar, Dishwash Liquid, Detergent Liquid, Degreaser liquid and All Home care Product.

FAQ OF CSDS



Q.No.16. Does it affect the detergency, foam height and degreasing property?

Ans. Yes, It Increases Foam Height, Detergency & Degreasing property

Q.No.17. Does it have to be neutralised?

Ans. It is Alkaline product.

Q.No.18. When should we add it while making detergent powder?

Ans. After adding of fillers and salt and before enzyme and perfume.

Q.No.19. Does the colour of the detergent powder changes if we add CSDS?

Ans. No, it is super white in colour, hence it does not effect in powder & liquid.

Q.No.20. Does it react with any of the ingredients of detergent powder?

Ans. No, It is compatible with LABSA, AOS, SLES, CAPB, CDEA,CB, fillers, salts, Optical brightener, enzymes, perfume.

Q.No.21. Will the shelf life of detergent powder change after adding CSDS?

Ans. No

Q.No.22. Is CSDS soluble in water?

Ans. Yes, 100% Soluble in cold water

FAQ OF CSDS



Q.No.23. Is it tested for toxicity?

Ans. Yes, It is non-toxic.

Q.No.24. Is it safe for skin?

Ans. Yes, it is safe for skin after controlled pH in final product.

Q.No.25. Is it biodegradable?

Ans. Yes.

Q.No.26. Is it similar to CSDS China available in market?

Ans. No, Because CSDS made in China is made from quartz and soda ash at 1500°C . Whereas Green CSDS is made from rice husk ash and alkali at 150°C to 200°C so this product save energy.

Q.No.27. Whether it is cheaper than Zeolite, STPP and CSDS China available in the market like ?

Ans. Yes, It is 35-40% cheaper than Zeolite and 45-50% cheaper than STPP.

Q.No.28. Does it gives Carbon Credit.

Ans. Yes, as the temperature of reaction is low as compared to conventional CSDS and sodium Silicate manufacturing at 1500°C , Whereas Green CSDS has reaction at 150°C to 200°C

FAQ OF CSDS



Q. No.29. Advantages of CSDS over STPP & Zeolite.

Ans. STPP is Banned all over world due to non bio degradable property. Zeolite work less for Mg salt dissolve and insoluble in water. CSDS required is 67% of Zeolite and 85% in STPP requirement as per CEC Value. CSDS is Completely soluble in water, but insoluble Zeolite and Partially soluble in STPP. CSDS has higher foaming, detergency, degreasing Property.

Q. No.5. Technical Specification of CSDS?

Ans.

Parameters	Units	Range	Result
Appearance	-	White free flow powder	White free flow power
Solubility	-	Soluble in water	Soluble in water
pH(1% solution)	-	30-Nov	12.13
Bulk Density	gm/cm ³	0.2-0.3	0.242
Tap Density	gm/cm ³	0.25-0.35	0.266
Moisture Content	%	1.00-5.00	1
Calcium Exchange Capacity	mg CaCO ₃ /gm	380-425	421.9
Na ₂ O Content	%	25-33%	32.12

FAQ OF CSDS



Q.No.8. Comparison of CSDS of China, Zeolite & STPP

Ans.

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Water softening Capacity (mg of CaCO ₃ per gm of softner taking 3% dosage of Softner in Detergent Powder / Cake	12000	12000	81000	10200
35 gm detergent powder in 7 ltrs of water - TDS removal capacity at a dosage of 3 %(of 35 gm)	420	420	300	357
pH	<=12	12	11	10
Humidity	<=5%	2-3%	4.34	1.2
Whiteness	>=80%	95	92	92.5
Visual Specific Gravity (Bulk Density)	0.35-0.65	0.2-0.3	0.3-0.4	0.7
Na ₂ O	35%	33%	19-35%	95.10%
P ₂ O ₅ Content	Nil	Nil	Nil	Nil
Solubility in water	Partially Soluble	Total Soluble	Insoluble	Partially Soluble
Emulsifying Property	Good Emulsifier	Good Emulsifier	No Emulsifier	Partial Emulsifier
Degreasing Property	Good Degreaser	Good Degreaser	Not Degreaser	Increase Degreaser
Detergency Property	Increases Detergency	Increases Detergency	Increases Detergency	Increases Detergency
Foam Booster	Increases Foam	Increases Foam	Increases Foam	Increases Foam