

TCS-3 PLUS

- **TCS-3 PLUS** does not contain silicate, phosphate, toxic chloride, or abrasives, is safe for the environment and is a tank cleaner and multipurpose detergent that has been recognized as a product that has achieved the Fish Acute Toxicity Test (a minnow) and biodegradation tests required by the IMO.
- It is suitable for old oil stains, polluted parts, in galleys, bathrooms, for grounds washing, and is usable on all metal parts, machinery, vehicles, office goods, etc. It particularly has a predominant effect in the case of cargo tank (NLS TANK) cleaning for vessels.
- Also, its surface tension is low, so it penetrates in polluted places excellently, and removes heavy crude oil, soot, asphalt, carbide stains, animal and vegetable oil fatty acids, and provides cleanliness after cleaning, especially preventing environmental pollution because its biodegradability is excellent.

1. Features and merits

- A. Excellent decomposition of pollution material and predominant washing
- B. Low irritation and excellence of biodegradability
- C. Multipurpose cleaner
- D. Prevention of repeat pollution
- E. Extensive dilution ratio
- F. Stability in light, soft water and seawater
- G. Improvement in workplace due to water solubility
- H. Stability in heat (nonflammable)
- I. Restrains effects of bacteria
- J. Does not contain petroleum, chlorine
- K. Special handling and storage isn't necessary
- L. Strong deodorization and disinfection effects
- M. Stability on metal and plastic
- N. Effective application on wide range of dirty material
- O. Usage in cargo tanks and engine rooms for vessel cleaning
- P. Does not contain potassium hydroxide or sodium hydroxide
- Q. Does not remain on surfaces by not containing a powder component
- R. Does not contain phosphate

2. Physical chemical properties

Appearance (original liquid)	Colorless transparent liquid
Specific Gravity (water = 1)	1.0
pH (original liquid)	9.0-10.0
Solubility (menstruum = water)	Completely soluble in fresh water or seawater
Influence to non-ferrous metals discoloration and corrosion test	No
Influence to rubber & plastic	No
Ignition point (°C)	No
Odor	Herb and mild odor

3. Usage scoup

- It is excellent for removing heavy crude oil, soot, asphalt, carbide, chemicals and animal-vegetable oil fatty acids, as a tank cleaner and oil remover, a multipurpose detergent for water stains, soap stains, all kinds of old dirty stains, etc. Cleans water scale and rust stains for repairing ships, equipment, etc.

4. Usage tips and dilution ratio

- Direct spray method: Use a high-pressure tank washing machine
- Dilution ratio: Generally 3-10%, 30-100 L mix per 1TON for washing water (seawater or fresh water)

5. Usage with high-pressure tank washing machine

- Initiate cleaning: Recommend washing inside of tank with seawater or fresh water at 50-60°C before using TCS-3 PLUS
- TCS-3 PLUS usage tips
 - Put 3-10% original liquid (washing water 1TON: original liquid 30-100 L) into mixture tank
 - And washing water capacity accounts for about 5-10% of the chemical tank so as to increase the occurrence of the water current.
 - The dilution ratio varies according to the extent of contamination, and it is good to keep a washing water temperature of 50-60°C in order to get the best effect, and one pail of original liquid can wash one or two tanks when comparing the extent of contamination
- Final cleaning: After cleaning with the chemical, wash with seawater or fresh water before drying

6. Recycling method

- Prepare 3-10% TCS-3 PLUS solution for a tank near a pump room
- Do recycling during one hour keeping at 50-60°C using a tank high-pressure washing machine
- Put in sufficient recycling washing water for continuous recycling

7. Hand spray method for inside tank

- A. Keep one meter from washing part or wall, spray original liquid or dilutions three or four times
- B. Wait at least two to 20 minutes after spraying
- C. Wash with tank washing machine or high-pressure spray machine
- D. Keep washing water temperature at 50-60°C in order to get the best effect
- E. Store (slop) washing water in tank to continuously strip during washing

8. Immersion washing method

- Use original liquid in places that are severely polluted, and wash with dilution liquid after dipping at least 10-30 minutes in 1-10% dilution in the case of slight pollution, including filter cleaning

9. General cleaning tips

- A. Factory floor: Dry with floor cloth or cotton, or wash with water after 1-10 minutes using 1:10-20 dilution ratio when cleaning oil and old dirty stains that sink into floor
- B. Filter cleaning: Air dry or dry with floor cloth or cotton, wash with water after 10 minutes using 1:2-5 dilution ratio in an empty container (adjust dilution and hours according to oil kind)
 - ⦿ Be usable to make adjustment workplace to dilute ratio suitably according to the terms above.
 - ⦿ Use with soft sponge or brush when washing machinery or facilities

10. Packaging unit

- A. Drum packing: actual capacity 210.00 L plastic drum packing
- B. Pail packing: actual capacity 25.00 L plastic pail packing

11. Care in storage and usage by Korea Products Safety Law

- A. Keep out of the reach of children.
- B. Don't spray directly in areas with food
- C. Be careful to keep away from children, such as playing with soap bubbles, balloons, etc.
- D. Follow the first aid measures below if swallowed or contact with eyes and skin is made
 - 1) Contact with eyes: Immediately clear the eyes for at least five minutes with clean flowing water, if problems continue, consult a doctor
 - 2) Contact with skin: Clean the skin with plenty of water and soap, if problems continue, consult a doctor
 - 3) If swallowed: Wash the mouth out with water and consult a doctor
- E. Do not use with sodium hypochlorite or decolorant sodium
- F. Use with a sponge or cloth when applying higher than eye level
- G. Wear protective equipment with rubber gloves, etc.

- H. Do not drink or inhale
- I. Close cap after use
- J. Do not freeze or leave in sunlight or high temperatures
- K. Use only for the stated purpose
- L. Use at room temperature for better effects
- M. Do not load more than three stages
- N. Refer to technical data and MSDS about other information details