



ABOUT 2020 SULFUR REGULATIONS



ERTEK

CHEMICAL PRODUCTS & SERVICES



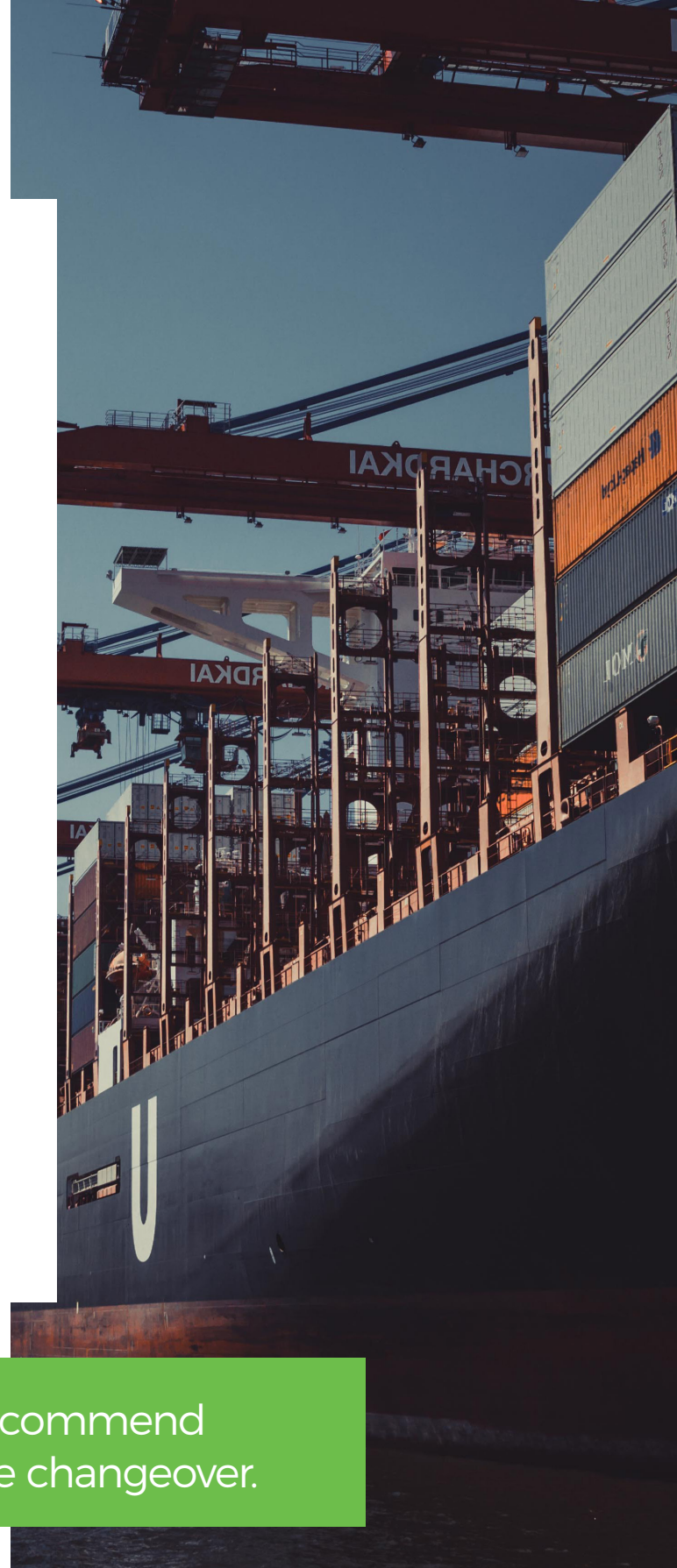
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The definition of “bunker fuel” for ships is a heavy fuel obtained as a residue by distillation of crude oil. After burning in the engine, crude oil releases sulfur from ship emissions. Sulfur emissions (SO_x) are known to be harmful to human health and cause respiratory symptoms and lung diseases. SO_x in the atmosphere can lead to acid rain, which can damage crops, forests and water species and cause acidification of the oceans.

In accordance with the new IMOMARPOL regulations, the limit of sulfur in fuel used on ships outside the designated emission control areas will be reduced to (max.) 0.50% m/m (Very Low Sulphur Fuel Oil – VLSFO) as of 1 January 2020. This will significantly reduce the amount of sulfur emissions from ships and provide significant health and environmental benefits for the world, especially for populations living close to ports and shores.

Before using compliant fuel oil and prior changing tank allocation, all residual fuel oil tanks, including settling and service tanks, must be cleaned.

As ERTEK CHEMICALS, we recommend two-step procedure for above changeover.





FIRST STEP: ERYAK-500

Storage tank will be severely contaminated with residual components such as high Sulphur sludge and sediments. When no cleaning has been performed before, the VLSFO bunkered on top of the sludge and sediments will dissolve these impurities and the Sulphur content in the VLSFO will be increased. This newly-loaded fuel oil will become noncompliant. Also, the mixing of impurities with this fuel oil will lead to filter and purifier blockage.

As it can be understood, it is essential to clean the storage tanks before assigning tank allocation for the VLSFO. The first stage of the cleaning procedure will involve the use of ERYAK-500, that is a concentrated fuel oil additive designed to disperse and dissolve sludge, and suspending high fuel particles.

ERYAK-500 is a concentrated fuel oil additive specifically designed to facilitate the handling and burning of all types of heavy fuel as well as to disperse and dissolve sludge and fuel particles into solution.

Using this additive for an adequate period of time, before the alteration in tank allocation, sludge is dispersed into the fuel gradually, leading in very small quantity sludge to dispose in the second stage of the tank cleaning. This method has reduced further cleaning requirements to a minimum. At the same time whole fuel system is cleaned, including pumps, pipelines, and crossover lines.



For vessels that are already using ERYAK-500, on constant basis, in the storage tanks (at least for 6 months period), the additive will have already provided a smooth clean-up.

It is highly recommended, that for the last two bunkers, before proceeding with the tank cleaning, the modification of the dosage rate to 1 litre per 10 cubic meters of fuel oil.

Please find below dosage rates for using ERYAK-500 for each bunker:

Required stages when the vessel is not using ERYAK-500

Bunker Dosage Rate	Dosage Rate
First	1 litre per 25 cubic meters of fuel oil
Second	1 litre per 15 cubic meters of fuel oil
Third	1 litre per 10 cubic meters of fuel oil



After completing the first stage of the procedure the second stage of the tank cleaning can be performed with minimum sludge left on the tank.

Then, please proceed with the final stage using ER-OGR or ERYAK 200. ER-OGR is an IMO approved tank cleaning chemical as per regulation 13.5.2 of Annex II of MARPOL 73/78 requirements.



**SECOND STEP:
OPTION A: ER OGR
(IMO APPROVED)**



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Heavy Fuel Oil Tank - cleaning procedure for ULSD / HFO

1. Empty the tank as much as possible; strip the storage tank by trimming the ship forward or aft depending on the suction valve location.
2. The tank has to be properly ventilated as it is an enclosed space and it might contain flammable gases.
3. It must be made sure that the steam connections are closed and proper signs and placards displayed so that during cleaning nobody opens the valve and gets burnt or hurt.
4. The tank has to be checked for flammable gases.
5. The tank has to be checked for Oxygen content with the help of Oxygen analyzer.
6. Follow the required safety regulations, as per ISM.
7. For the left-over oil, and with the use of air-driven pump*, start spraying ER-OGR (neat) on the bulkhead surfaces.
8. Depending on the surface area contamination ER-OGR can also be used diluted.
9. After finishing the application of ER-OGR the tank is cleaned manually with the use of all the necessary equipment, in case left over oil still exists.
10. After manual cleaning, using the air-driven pump, all left over oil, sitting on tank top, must be cleaned by stripping.
11. The left over oil that cannot be cleaned with the air-driven pump must be manually cleaned with the use of all necessary equipment.
12. After this stage, a visual inspection must be performed so that everything remaining on the bulkhead surfaces to be noticed.
13. In case left over oil still exists continue the manual cleaning.
14. After finishing with the cleaning procedure then rinse the tank with fresh water.
15. Repeat if necessary.
16. Please dispose the remaining residues and water-washings following MARPOL regulations for environmental handling of this type of residues.

*The tank has to be properly ventilated during whole process.



SECOND STEP: OPTION B: ERYAK 200

Heavy Fuel Oil Tank - cleaning procedure for ULSD / HFO

1. Empty the tank as much as possible; strip the storage tank by trimming the ship forward or aft depending on the suction valve location.
2. The tank has to be properly ventilated as it is an enclosed space and it might contain flammable gases.
3. It must be made sure that the steam connections are closed and proper signs and placards displayed so that during cleaning nobody opens the valve and gets burnt or hurt.
4. The tank has to be checked for flammable gases.
5. The tank has to be checked for Oxygen content with the help of Oxygen analyzer.
6. Follow the required safety regulations, as per ISM.
7. For the left-over oil, and with the use of air-driven pump*, start spraying ERYAK 200 (neat) on the bulkhead surfaces.
8. ERYAK 200 should be used undiluted, when ERYAK 200 is used for cleaning, slop won't formed. ERYAK 200- fuel oil mixture can be discharged to other tanks.
9. After finishing the application of ERYAK 200 the tank is cleaned manually with the use of all the necessary equipment, in case left over oil still exists.
10. After manual cleaning, using the air-driven pump, all left over oil, sitting on tank top, must be cleaned by stripping.
11. The left over oil that cannot be cleaned with the air-driven pump must be manually cleaned with the use of all necessary equipment.
12. After this stage, a visual inspection must be performed so that everything remaining on the bulkhead surfaces to be noticed.
13. In case left over oil still exists continue the manual cleaning.
14. After finishing with the cleaning procedure then rinse the tank with fresh water.
15. Repeat if necessary.
16. Please dispose the remaining residues and water-washings following MARPOL regulations for environmental handling of this type of residues.

*The tank has to be properly ventilated during whole process.