

Cargo Hold Cleaning

Quick Guide

— Only with **NAVADAN**TM
by Wilhelmsen



Cargo Hold Selection Guide

// The table describes the types of cargo and cleaning agent in combination with epoxy coatings. For any type of cargo we strongly recommend to clean soonest after each cargo discharge, in order to avoid persistent stain accumulation.



Pure Chemicals	Synonyms	Cleaning Procedure	Cleaning Agent
Ammonium Sulphate	Diammonium Sulfate, Sulfuric Acid Diammonium Salt	A	Water
Ammonium Nitrate	Nitric Acid Ammonium Salt		
Barium Nitrate	Barium Dinitrate		
Diammonium Phosphate	Diammonium Hydrogen Phosphate, DAP, Phosphoric Acid Diammonium Salt		
Mono Ammonium Phosphate	Ammonium Dihydrogen Phosphate, ADP, Ammonium Phosphate and Biphosphate		
Muriate of Potash	Potassium Chloride, Potash Muriate, Potassium Monochloride, Sylvite		
Potash	Potassium Carbonate, Carbonate of Potash, Pearl Ash		
Salt	Sodium Chloride, Rock Salt, Saline		
Soda Ash	Sodium Carbonate, Soda, Disodium carbonate		
Urea	Carbamide, Carbonyldiamine		
Sulphur	Sulfur, Brimstone, Flowers of Sulfur, Flour Sulfur	C or D	1. Navadan CleanHold 2. Cargoclean HD 3. Aquatuff + Foam Agent
Triple Superphosphate	Superphosphates, Concentrated	E/F	1. Navadan Shinecargo 2. Navadan FreshHold



Ores and Minerals	Synonyms	Cleaning Procedure	Cleaning Agent
Anthracite	Hard Coal	C or D / °F	1. Navadan CleanHold 2. Cargoclean HD 3. Aquatuff + Foam Agent *Navadan FreshHold
Bentonite	Sodium Montmorillonite		
Chrome Ore	N/A		
Clay	Kaolin, China Clay		
Dolomite	Calcium Magnesium Carbonate, Dolostone, Dolomitic Limestone		
Pyrite	Iron disulfide, Iron Pyrite, Pyrox		
Phoshale Rock	N/A		
Quartzite	Silicone Dioxide, Crushed Stone		
Talc	Kerolite, Magnesium Talc, Soapstone		
Vanadium Ore	N/A		
Fluorspar	Calcium Fluoride, Fluorite	B	Navadan CleanHold
Gypsum	Calcium Sulfate Dihydrate, Gypsum Stone, Mineral White	E	Navadan ShineCargo
Iron Ore Pellets	N/A		
Iron Ore	N/A		
Limesand	N/A		
Limestone	Calcium Carbonate		
Magnetite	Iron Black		
*Manganese Ore	Manganese Ore A		
Bauxite	N/A		
Copper Mineral Concentrate	N/A		
Lead Mineral Concentrate	N/A		
Zinc Mineral Concentrate	N/A		



Metal, Alloys, etc.	Synonyms	Cleaning Procedure	Cleaning Agent
Aluminium Dross	N/A	B	Navadan CleanHold
Zinc Ashes	N/A		
Zinc Dross	N/A		
Zinc Residues	N/A		
Ferro Alloys	N/A		
Granulated Slag	N/A	E	Navadan ShineCargo
Hot Briquetted Iron	HBI		
Magnesite (Deadburned)	Magnesium Oxide		
Mill Scale-iron Ore	N/A		
Pig Iron	N/A		

Coal, Petcoke and Pencil Pitch	Synonyms	Cleaning Procedure	Cleaning Agent
Brown Coal Briquettes	Lignite Brown Coal Briquettes	C or D	1. Navadan CleanHold 2. Cargoclean HD 3. Aquatuff + Foam Agent
Calcined Petroleum Coke	N/A		
Coal	N/A		
Coke	N/A		
Pencil Pitch	Coal Tar Pitch		
Petroleum Coke	Petcoke		

Miscellaneous Feedstock	Synonyms	Cleaning Procedure	Cleaning Agent
Castor Beans	N/A	C or D	1. Navadan CleanHold 2. Cargoclean HD 3. Aquatuff + Foam Agent
Copra Dry	N/A		
Fish Meal	N/A		
Peat Moss	N/A		
Seed Cake (Solvent Extracted)	N/A		
Soya Beans	N/A		
Sunflower Seed	N/A		
Wheat	N/A		
Cement and Fly Ash	Synonyms	Cleaning Procedure	Cleaning Agent
Cement	N/A	F	Navadan FreshHold
Cement Clinkers	N/A		
Fly Ash	N/A	C or D	1. Navadan CleanHold 2. Cargoclean HD 3. Aquatuff + Foam Agent

*Descaling Liquid can be used in case Navadan FreshHold is not available

When using Aquabreak PX or Aquatuff, we recommend the use of Foam Agent in order to increase the foaming ability and soaking time on the cargo hold surfaces. In some cases a two step cleaning procedure is needed. After cleaning procedure C or D, cleaning procedure F may be necessary.



Hold Protection Chemicals	Product Number
Navadan BarrierHold 25 Litre	4000186
Unitor™ Slip-Coat™ 25 Litre	737015

Cleaning Chemicals	Product Number
Navadan CleanHold 25 Litre	4000156
Aquatuff 25 Litre	607826
Foam Agent 3 x 5 Litre	614537
Aquabreak PX 25 Litre	575613
Navadan Shinecargo 25 Litre	4000166
Navadan FreshHold 25 Litre	4000171
Cargoclean HD 25 Litre	779104

Cargo Hold Cleaning Kits	Product Number
Navadan Ultimate Kit	2009029
Navadan Panamax Kit	2009025
Navadan Essential Kit	2009026
Navadan Applicator Kit	2009027

Slop Water Excavation Kits	Product Number
Navadan Diaphragm Kit	2009032
Navadan Submersible Kit	2009033

High Pressure Cleaning, Stain Removal	Product Number
HPCE Dynamis 300+	771716
HPCE Dynamis 350+	771785
HPCE Dynamis 500+	720131
Navadan Hotbox	2009038
Navadan Anaconda	2009041
Navadan Tool Carrier	2009040
Navadan Python	2009039

Hold Cleaning PPE	Product Number
Navadan Protection Kit	2009034
Chemical Gloves PVC, Pair	2009069
Chemical Protection Goggles	720009
Chemical Protection Suit, L	2009067
Chemical Protection Suit, XL	2009068
Half Face Mask	2009071
Full Face Mask	2009070
Filters A1B1P3 R	2009072
Cleaning Boots S5 Size 42	571028
Cleaning Boots S5 Size 43	571036
Cleaning Boots S5 Size 44	571044
Cleaning Boots S5 Size 45	571052

// For more information
 contact your local
 specialist team.

Chemical Procedures

// We strongly recommend the use of Navadan BarrierHold or Unitor[™] Slip-Coat[™] prior to loading any “dirty” cargo. Both chemical are temporary hold coatings that will prevent the hold from staining and speed up the cleaning operations after discharging. Unitor[™] Slip-Coat[™] is suitable for dry cargoes as it is water dissolvable; Navadan BarrierHold is a water resistant coating for preparation of dry bulk vessels before loading challenging cargoes, and ideal for wet or corrosive cargoes and under humid / damp conditions or where condensation is expected.



Procedure for applying **Unitor[™] Slip-Coat[™]** and **Navadan BarrierHold**

01

Rinse hold surfaces with fresh water – surfaces should be clean and dry before treatment.

02

Both products are supplied at ready-to-use concentration, apply directly with Navadan Applicator Kit, Navadan Ultimate Kit, Navadan Panamax Kit or Navadan Essential Kit.

03

Once surfaces appear wet, a proper film is created; do not apply more than necessary. Allow the film to dry completely before loading the next cargo.



Cleaning Procedure A

1. Sweep and muck out all residue.
2. Check if cargo reacts to sea water, if not Pre-wash the cargo hold with cold sea water using Navadan Tornado Kit or Navadan Maxi Kit. For fresh water washing use Navadan Panamax Kit or Navadan Tornado Kit.
3. Wash down with warm/hot fresh water using Navadan Tornado Kit and check the result.

Cleaning Procedure B

1. Sweep and muck out all residue.
2. Apply Navadan CleanHold diluted at a ratio of 1:2 to 1:3, or at a higher dilution depending on the condition of the cargo hold. It is recommended to use CleanHold with Navadan Ultimate Kit, Panamax Kit, or Essential Kit, as all are equipped with the necessary foaming capability. Foaming application is essential to achieve optimal cleaning performance. These kits can also be used for spot cleaning. Foaming application is essential to achieve optimal cleaning performance. These kits can also be used for spot cleaning.
3. Depending on the temperature and humidity in the cargo hold, the effective residence time may vary from 10 to 30 minutes.
4. Wash down with fresh water using Navadan Tornado Kit. Navadan Maxi Jet should only be considered if using seawater for wash down. Use hot water if possible and check the results.
5. Repeat the procedure if necessary.

Cleaning Procedure C

1. Sweep and muck out all residue.
2. Apply Cargoclean HD diluted at a ratio of 1:9 (10%) or at a higher dilution ratio, depending on the condition of the cargo hold. It is recommended to use Cargoclean HD with Navadan Ultimate Kit, Panamax Kit, or Essential Kit, as all are equipped with the necessary foaming capability. Foaming application is essential to achieve optimal cleaning performance. These kits can also be used for spot cleaning.
3. Let it soak for 10-15 minutes. During this time the surface must remain wet with the cleaning solution.
4. Wash down with fresh water using Navadan Tornado Kit. Navadan Maxi Jet should only be considered if using seawater for wash down. Use hot water if possible and check the results.
5. Repeat the procedure if necessary.

Cleaning Procedure D

1. Sweep and muck out all residue.
2. Apply Aquatuff at a dilution 1:4 to 1:9 with freshwater and add 0.5 liters of Foam Agent per 100 liter solution. It is recommended to use the blended solution with Navadan Ultimate Kit, Panamax Kit, or Essential Kit, as all are equipped with the necessary foaming capability. Foaming application is essential to achieve optimal cleaning performance. These kits can also be used for spot cleaning..
3. Depending on the temperature and humidity in the cargo hold, the effective residence time may vary from 10 to 30 minutes.
4. Wash down with fresh water using Navadan Tornado Kit. Navadan Maxi Jet should only be considered if using seawater for wash down. Use hot water if possible and check the results.
5. Repeat the procedure if necessary.

Cleaning Procedure E

1. Sweep and muck out all residue.
2. Apply Navadan ShineCargo in dilution ratio of 1:2 to 1:3 with freshwater; higher dilution ratio can be used, depending on the severity of cargo hold conditions and let it soak for 20-30 minutes.

It is recommended to apply the chemicals using the Navadan Ultimate Kit, Panamax Kit, or Essential Kit. These kits are also suitable for spot cleaning. After use, all equipments should be thoroughly rinsed with freshwater as part of proper equipment maintenance.

3. Do not let the chemicals dry out.
4. Wash thoroughly with fresh water.
5. Repeat the procedure if necessary.

Cleaning Procedure F

In cases where we deal with heavy deposit build up, we recommend the use of Navadan FreshHold based on strong acids with corrosion inhibitors.

1. Sweep and muck out.
2. Apply Navadan FreshHold in dilution ratio of 1:9 to 1:2 (10-30% solution) with freshwater; higher dilution ratio can be used, depending on the severity of cargohold conditions and let it soak for 15 minutes.

It is recommended to apply the chemicals using the Navadan Ultimate Kit, Panamax Kit, or Essential Kit. These kits are also suitable for spot cleaning. After use, all equipments should be thoroughly rinsed with freshwater as part of proper equipment maintenance.

3. Do not let the chemicals dry out.
4. Wash thoroughly with fresh water.
5. Repeat the procedure if necessary.

Disclaimer: Wilhelmsen Ships Service assumes that persons responsible for carrying out cleaning operations are familiar with the safety guidelines published in SOLAS, ISGOTT and other relevant guides and/or local port restrictions and laws that will pertain to such operations.

Where the **Right Chemistry** meets the **Right Tools**



Navadan Cleanhold



Navadan Barrierhold



Unitor Slip Coat



Navadan Shinecargo



Navadan Freshhold

Cleaning chemical application:
ultimate kit, panamax kit and
essential kit



Chemical application: Applicator kit for hold coat



Wash down: tornado kit



Slop water evacuation:
submersible kit and diaphragm kit



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