

Cargo Contamination on Chemical Tankers March 2022

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Agenda

- Claims statistics
- Cargo acceptance and preparation
- Cargo care during the voyage
- Cargo care at discharge port
- Common cause
- Conclusion

Statistics - last 5 years

TSP Statistics

- Total USD 89.5 million 474 numbers
- Cargo claims 19.9 million, 22%, 47 in numbers
- 17 cases 4.6 million contamination 23%
- Common issues – water
- More than 50% from shore – Manifold sampling

Cargo selection

- Know your cargo
- Your ship - coating, equipment, chemicals
- Segregation
- Sensitive cargo and spec required
- Cleaning standard for the tank - requirement
- Do the crew need help - to meet the requirement?
- Let operation and chartering know
- Appropriate sampling protocol to be established
- Ask for help if required

Condition of the tank



Tank cleaning

- What standard of cleaning?
- Assessment of time available and resources
- Chemicals
- Fresh water
- Spectrometer?

Loading

- Sampling
- Procedures / ISM / Line checking
- Monitor any change of shore tank
- Record

Voyage

- Follow voyage instruction if any
- Temperature instruction, N2 padding
- Log anything not obvious
- Notify

Discharge port

- Sampling
- Establish the any requirement
- Issue protest if anything unusual

Common causes of contamination

- From ashore / terminal
- Previous cargo residue from the system in either liquid or vapour form
- Tank condition (rust, breakdown of coating)
- Poor tank cleaning



Sampling

- Who is responsible?
- Document chain of custody
- Equipment clean and fit for purpose

Sampling

Purpose: to protect Members

LOCATION	Homogenous Cargo <i>Samples per tank</i>	Non-Homogeneous Cargo <i>Samples per tank</i>
Load Port		
Pre-loading – Shore Tank(s)	1 to 2 (Possibly Composite)	1 to 7 (Upper, Middle, Lower)
Upon Loading – Manifold / Tank Change / Shore Stops	1 to 3	1 to 3
Loading First Foots	1 to 2	1 to 2
Completion of Loading (Final)	1	1 to 3 (Upper, Middle, Lower)
Discharge Port		
Pre-discharge – Ship’s Tank	1	1 to 3 (Upper, Middle, Lower)
Total	5 to 9	5 to 18
<i>Average</i>	<i>7 sample per tank</i>	<i>12 samples per tank</i>

Sampling

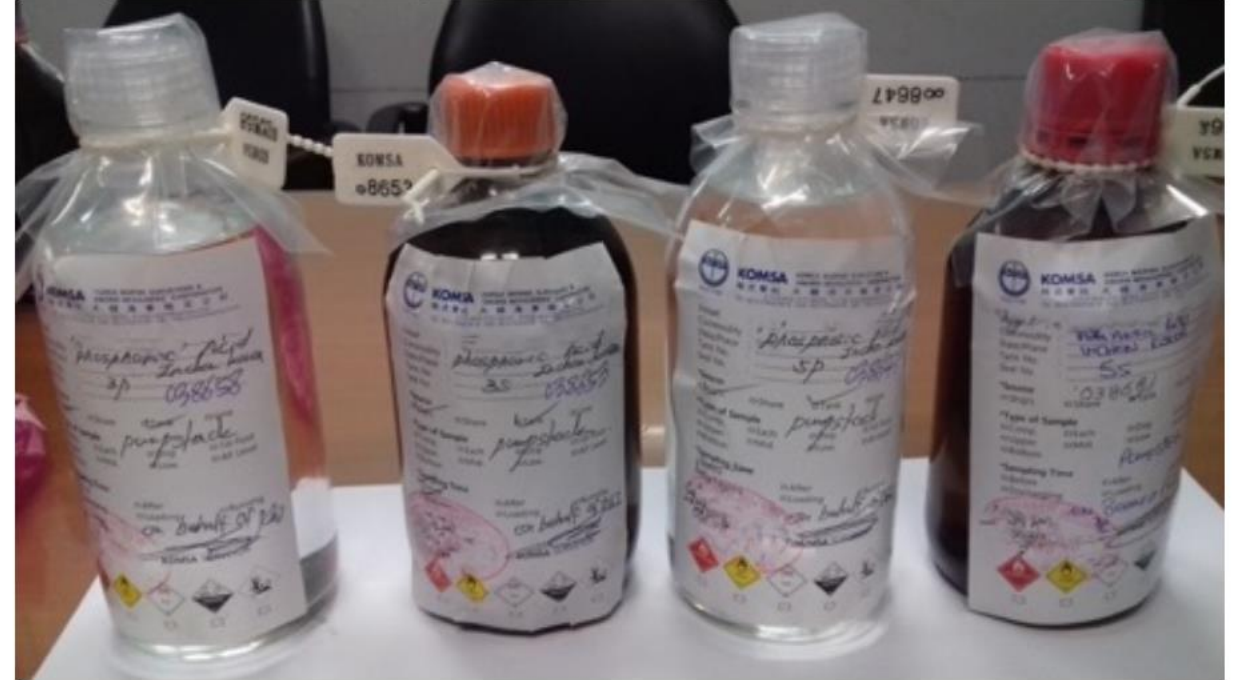
Sample labels

Incomplete Labelling



Issues with establishing origin, sampling point and dates the sample was taken.

Proper Labelling



Providing better evidence in cases of dispute.

Conclusion

- Prevention is always better
- ISM
- Cargo selection
- Voyage instruction
- Tank cleaning, with due consideration of the coating
- Sampling, Sampling, record keeping

Assistance from Club

LP, IR, Publications, Social Media



MEG – The Cargo



MEG – Specification

Quality Parameter	Test Method	Units	MEG Grades		
			Fibre	Industrial / Technical	Anti-Freeze
MEG Purity	By difference	% wt.	min. 99.9%	min. 99.1%	Min. 95.0%
Diethylene Glycol (DEG)	ASTM E2409	% wt.	0.05	0.60	5.0
Acidity (as Acetic Acid)	ASTM E2679	ppm	20	20	100
Iron	ASTM E1615	ppm	0.1	1.0	-
Chlorides	ASTM E2469	ppm	0.2	-	-
Water	ASTM E1064	% wt.	0.05	0.3	0.5
Colour	ASTM D5386	Pt / Co	5	10	25
Appearance	ASTM E2680 – Clear bright, particle free ¹	Pass / Fail	Pass	Pass	Pass
UV Transmit @ 220nm	ASTM E2193	% T	70	-	-
UV Transmit @ 250nm	ASTM E2193	% T	90	-	-
UV Transmit @ 275nm	ASTM E2193	% T	95	-	-
UV Transmit @ 350nm	ASTM E2193	% T	98	-	-

¹ No more than the maximum number of particles (0-20) of suspended matter no greater than 1 mm in diameter and no free water (or oil).

MEG – Cleanliness Standard

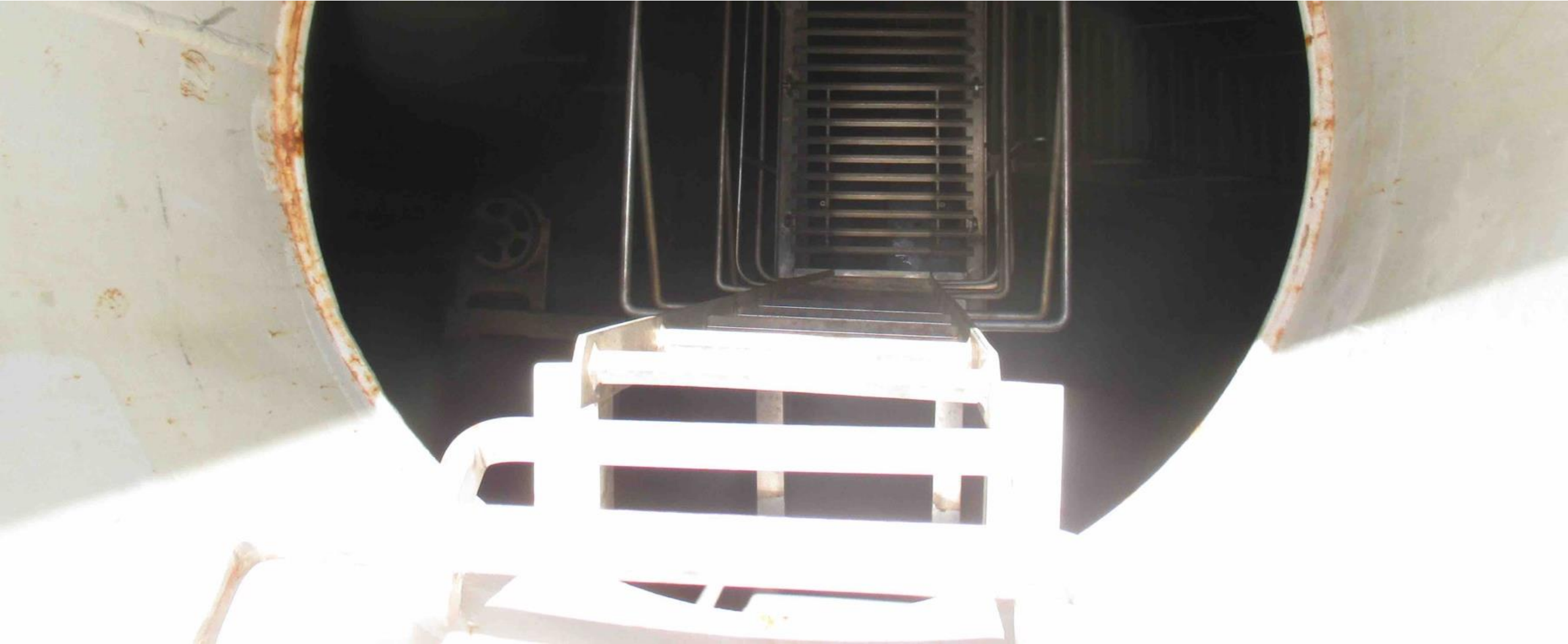
Standard No.	Standard Name	Definition	Test methods	On-board test conducted by ship's crew	Comments/description
3	High-Purity Standard	Dry, odour-free, free of visual residues + wall-wash with methanol conforms to: <ul style="list-style-type: none"> • Water miscibility test (ASTM D 1722) passes • Colour PtCo (ASTM D 1209) or APHA 10 or less • Chlorides less than 2 ppm • Permanganate time test above 50 min • UV spectrum passes 		In-tank inspection – Dry, odour-free, free of visual residues + wall-wash with methanol conforms to: <ul style="list-style-type: none"> • Water miscibility test (ASTM D 1722) passes • colour PtCo (ASTM D 1209) or APHA 10 or less • Chlorides less than 2 ppm • Permanganate time test above 50 min • If WWM is used UV spectrum passes 	This is the most commonly used standard for the carriage of methanol as a cargo. Master will confirm that the on-board tests were conducted via a tank cleanliness certificate. Charterer may accept the cleanliness certificate provided by the master or may require an internal visual inspection <u>and</u> a wall-wash test. This should be pre-agreed with the charterer/shipper.
			WsW ³	Less than 100 ppm of last cargo in final wash-water	

MEG – Cleanliness Standard



MEG – Cleanliness Standard

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MEG – Cleanliness Standard

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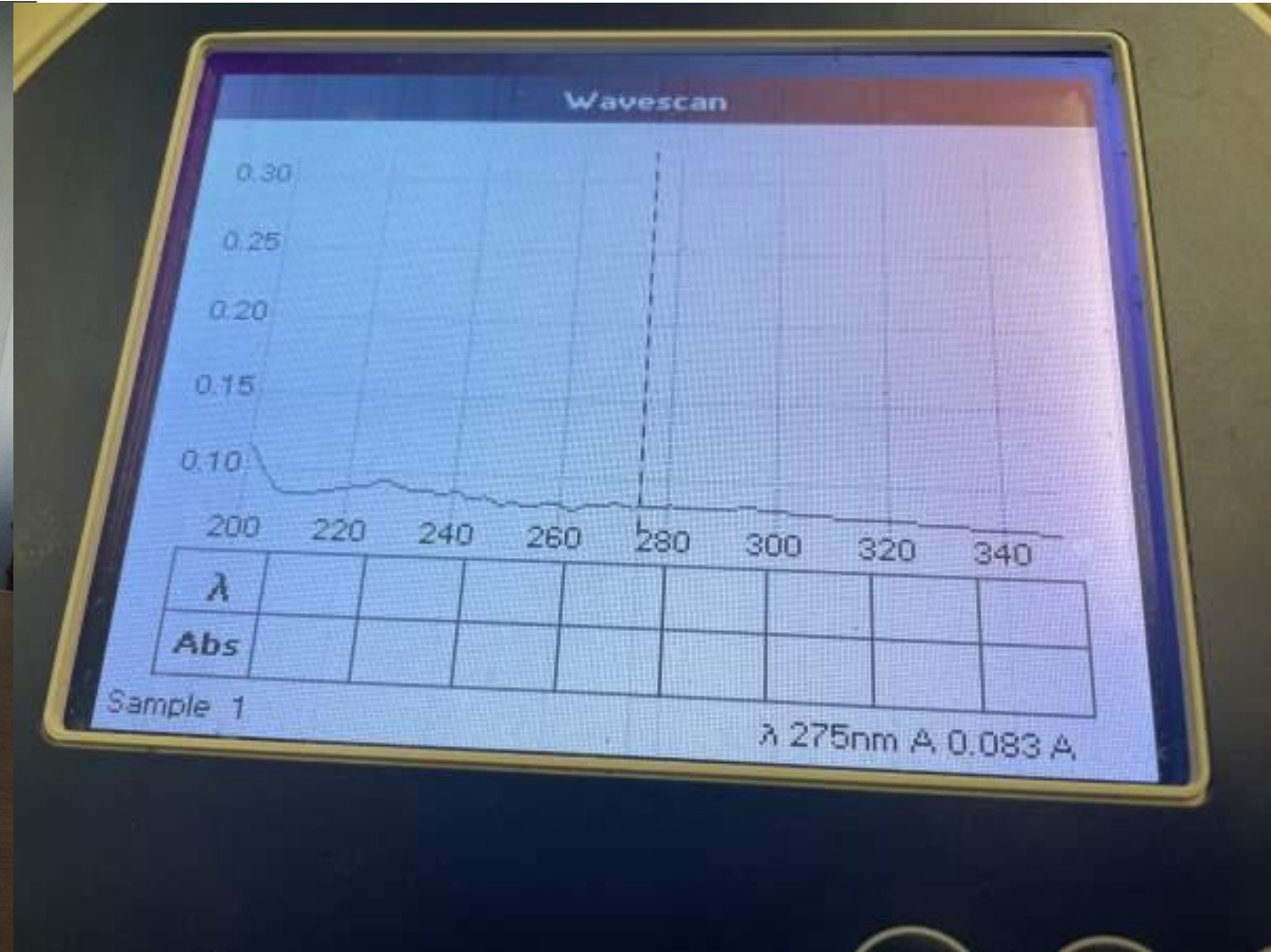


MEG – WWT (Wall Wash Test)

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MEG – UV Spectrometer



MEG – Grades & Pricing

FIBRE GRADE (“MEG-FG”)

Requires UV testing

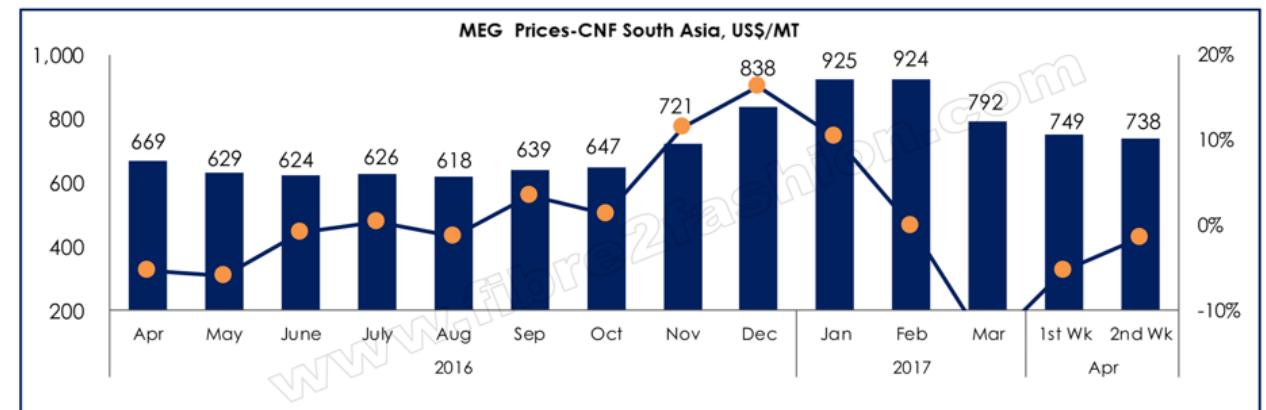
Polyester Resins → fibres (textiles), films (packaging) and PET (bottles).

ANTI-FREEZE GRADE

Seasonal pricing: March (lowest). Purchases start in August/September.

INDUSTRIAL GRADE

Prevent hydrate formulations in oil & gas industry.



MEG – Common Issues & Solutions

DIFFERENT MEG UV TEST METHODS

- SMS-1997 vs ASTM E2193 Option A vs ASTM E2193 Option B.
- Check COQ's and Cargo Spec. Push for Option A as Nitrogen Sparging removes oxygen introduced in sampling.

WATER CONTENT

- MEG = Hygroscopic.
- Preference for Nitrogen Padding (especially for long voyages).
- Thorough tank drying, including lines, pumps, vapour lines and fixed tank cleaning machines.
- Repeat sampling in humid environments to avoid .



MEG – Common Issues & Solutions

PREVIOUS CARGOES

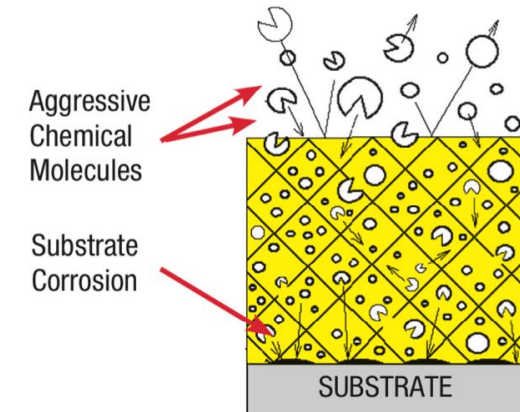
- Try to avoid carrying in Coated Tanks due to absorption-desorption of previous cargoes, including:
 - Aromatics, CPP, Benzenes, Xylenes;
 - Products which polymerise (e.g. SM, IPM, etc.); and
 - Check Shell Table.
- In Stainless Steel, be wary of polymerising cargo residues.

POOR SAMPLING PRACTICES

- All equipment cleaned and all SUS. Bottle clean, with tight cap.
- Minimum headspace (purged = too expensive)
- Sampled from middle of cargo. Tested quickly.
- If stored, always keep <27°C and away from light.



Problems with Phenolic Epoxy and Modified Epoxy Open Screen Structures



Aggressive chemical molecules penetrate into and through the polymer groups attacking both the inner polymer structure and the substrate.

Palm Oils - Grades



Palm Oils - Grades

CPO (CRUDE PALM OIL)

To be processed to yield refined, bleached and deodorised (RBD) value-added fractions. FFA max 5.0%
Approx. USD 1,700/MT

PFAD (PALM FATTY ACID DISTILLATE)

“By product” of Palm Oil, not fit for human consumption
Due to COVID, pricing is now closer to CPO.
Approx. USD 1,550/MT

RPO (REFINED PALM OIL)

Processed product is more sensitive, same with all Oleins.
FFA max 0.1%
Approx. USD 1,670/MT

MANY FURTHER GRADES

PAO (Palm Acid Oil), PO (Palm Olein), PKO (Refined Palm Kernel Oil), RPS (Refined Palm Stearin), ROL (Refined Palm Olein), etc.



Palm Oils - Specification

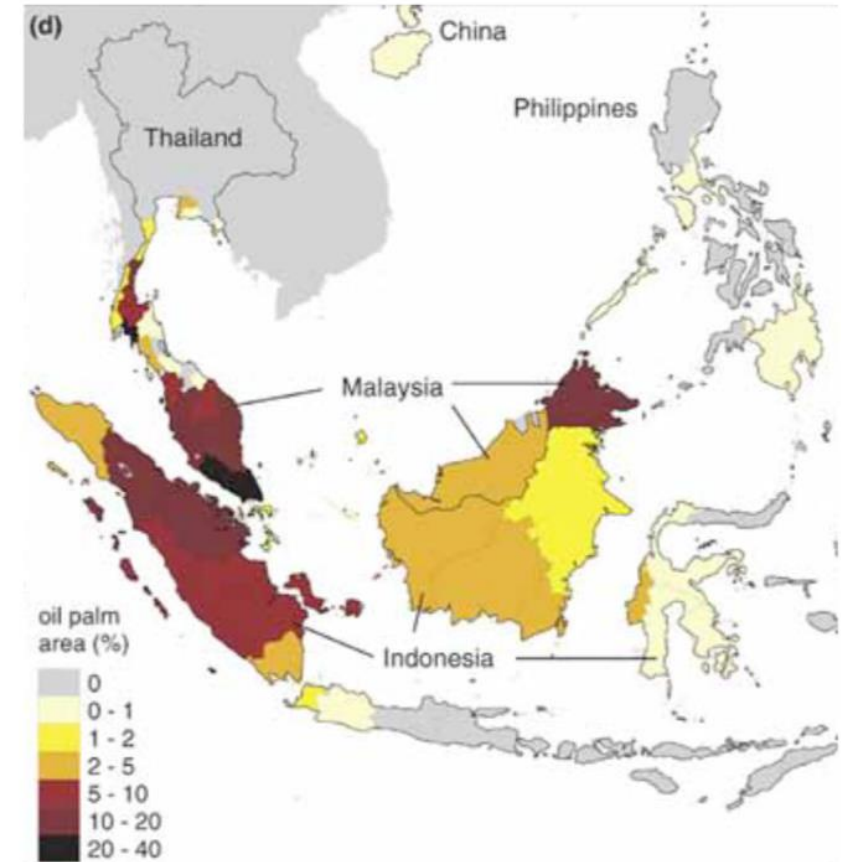
FREE FATTY ACID (FFA)

- The maximum FFA content set by PORAM (Palm Oil Refiners Association of Malaysia) is:

Crude Palm Oil (CPO):
Max. 5% FFA

RBD (Refined, Bleached and Deodorised) Palm Oil:
Max. <0.1% FFA

- Common CPO FOB load port spec. is 4.5% to ensure arrival within 10-20 days below 5% FFA
- Usually carried from SE Asia to India or Japan.



Palm Oils – Protective Handling Steps

GENERAL GUIDANCE FOR PALMS

- Master must monitor loading temperature. Keep between 45-50°C.
- Fully documented sampling (incl. photos, labels and seals).
- ISO 5555 sampling approach and check FOFSA contract terms.
- Manifold + Upper, Middle Lower and Composite Ship's Tanks.

NB. OLEINS AND SUPER-OLEINS (DOUBLE FRACTIONATED OLEIN)

- Must be treated as ultra sensitive
- Nitrogen blanketing (avoid oxidation FFA increase)
- Stainless Steel tonnage (avoid iron catalysing FFA formation)
- No adjacent heat.
- Liquid at most ambient temperatures.
- No over-heating
- Keep at 0.1% wt max. FFA



Palm Oils – FFA (Free Fatty Acid)

FREE FATTY ACID FACTORS

Oxidative mechanism

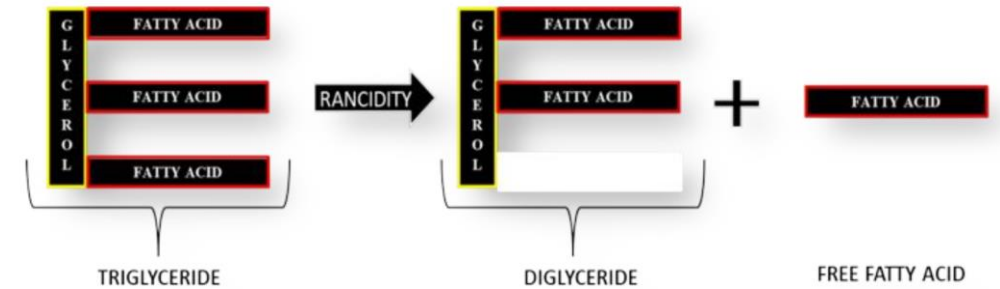
- FFA increases due to high temperature, but could be due to temperature abuse prior to load. Sample analysis to investigate.

Hydrolytic mechanism

- FFA increase due to water. Sources including: moisture co-delivered, leaking heating coils, or poorly sealed hatches. Promptly remove any water.

Auto-catalytic mechanism

- FFA increase due to time. Higher initial FFA %, the faster its increase (non-linear growth). Deliver cargo ASAP. Consider heating approach (if timing is not controllable).



Palm Oils – Contractual Depreciation Scale

COMMON SALES CONTRACT DEPRECIATION TERM

- Specification is FOSFA Limit of 5.0% FFA, e.g. sales price at USD 2,000/MT and if arrives at 6.0% FFA = +1% FFA

1.5% sale price depreciation per 1% FFA increase = equivalent to USD 30/MT

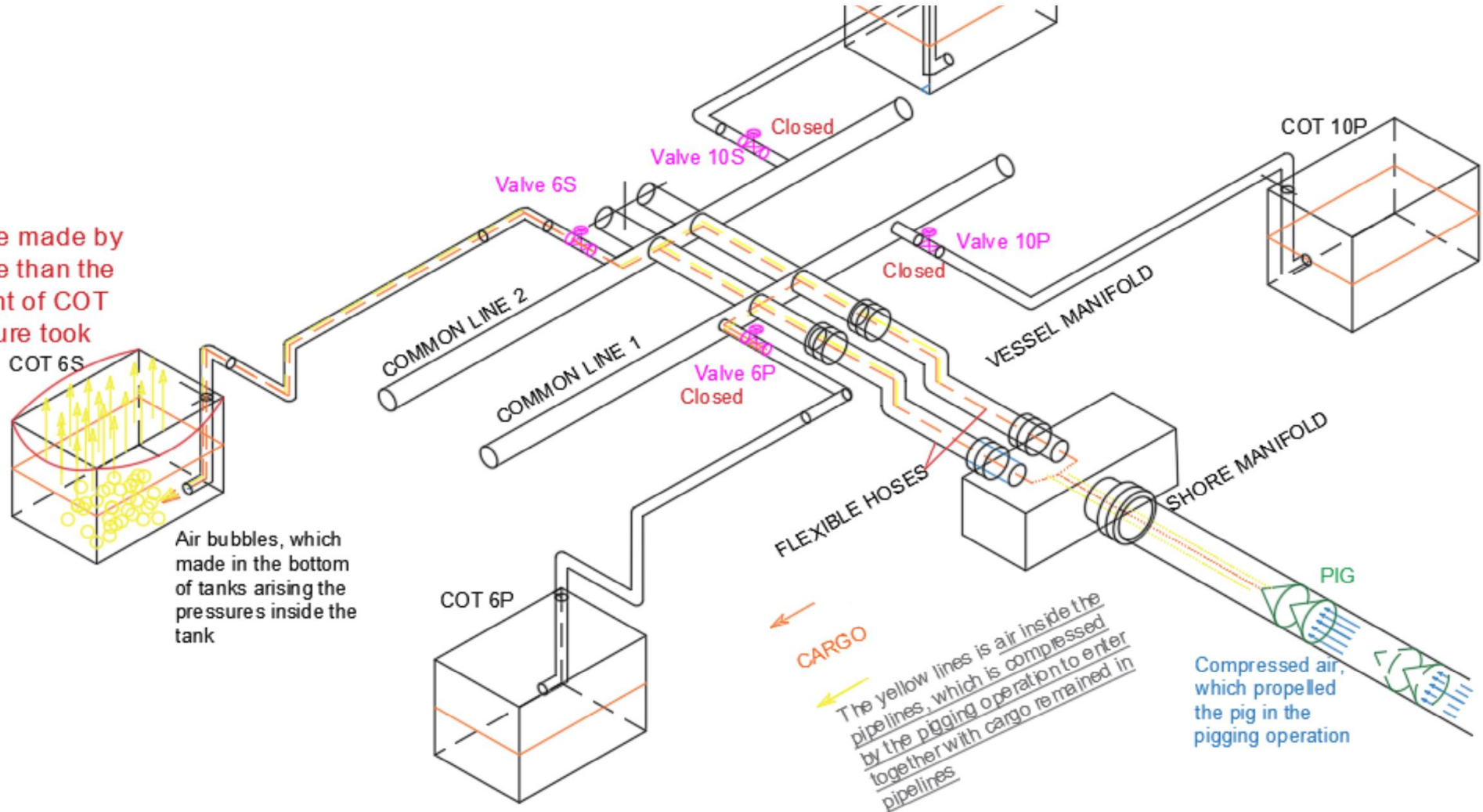
- E.g. say 10,000 MT then = USD 300,000 loss

KEY MITIGATION POINTS TO RAISE

- Check if any depreciation clause in sales contract. Nevertheless, try to avoid FFA increases over the voyage.
- Any Receiver with edible oil refining capabilities would be able to use high FFA CPO.
- Extracted FFA does still have some commercial value as Palm Acid Oil (PAO), used for example in animal feed and the production of FAME for biodiesel.

Palm Oils – Overpressure Incidents

When the pressure made by air bubbles is more than the capacity of the vent of COT 6S, the overpressure took place



Air bubbles, which made in the bottom of tanks arising the pressure inside the tank

The yellow lines is air inside the pipelines, which is compressed by the pigging operation to enter together with cargo remained in pipelines

Compressed air, which propelled the pig in the pigging operation

Palm Oils – Overpressure Incidents

- Check Ship-Shore Agreement, including maximum pressure and start/stop communication protocols
- Communication with Terminal under International Safety Guide for Oil Tankers and Terminals (ISGOTT) at §15.5.3:

*“The Terminal Representative should regularly check pressures in the pipeline and hose or metal arm and compare the estimated quantity of cargo loaded or discharged with the tanker's estimate. **An unexpected drop in pressures, or any marked discrepancy between tanker and terminal estimates of quantities transferred, could indicate pipeline or hose leaks, particularly in submarine pipelines, and require that cargo operation be stopped until investigations have been carried out.**”*

ISGOTT Sixth Edition

Part 6. Tanker and terminal: agreements pre-transfer (cont.)				
Part 5 item	Agreement	Details	Tanker initials	Terminal initials
45 46	Pressure surge control	Minimum number of cargo tanks open: Tank switching protocols: Minimum number of cargo tanks open: Tank switching protocols: Full load rate: Topping-off rate: Closing time of automatic valves:		
46	Cargo transfer management procedures	Action notice periods: Transfer stop protocols:		
50	Routine for regular checks on cargo transferred are agreed	Routine transferred quantity checks:		
51	Emergency signals	Tanker: Terminal:		
55	Tank venting system	Procedure:		
55	Closed operations	Requirements:		
56	Vapour return line	Operational parameters: Maximum flow rate:		
60	Nitrogen supply from terminal	Procedures to receive: Maximum pressure: Flow rate:		

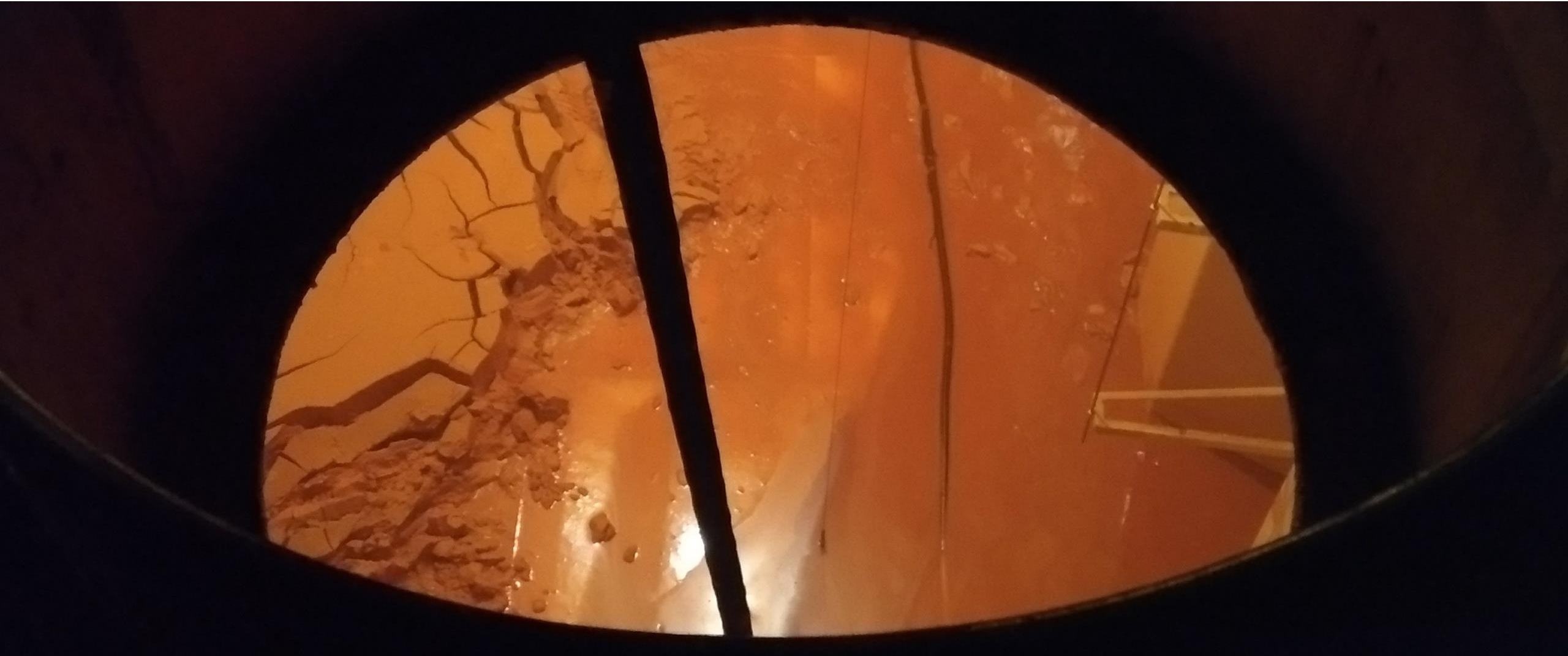
Palm Oils – Stratification & Separation



Palm Oils – Stratification & Separation



Palm Oils – Stratification & Separation



Methanol – Top 4 Chemicals Worldwide



- Ultra-high purity liquid chemical
- Worldwide consumption over 90 million MT
- Made into:
 - Formaldehyde (resins, binder, laminates and foams)
 - Acetic Acid (onwards to make VAM = base resins)
 - MTBE (octane booster and oxygenate for gasoline)
 - Downgrade to anti-freeze
- China is the largest producer
- Methanex Corp has 14% global market share
- Asia has 72% of Methanol demand



Methanol - Specification

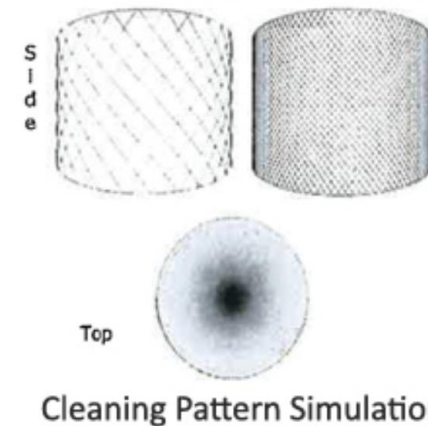
Criteria	Unit	Method	Spec. Limits
<i>Appearance</i>	-	IMPCA 003-98	Clear and free of suspended matter
<i>Purity on dry basis</i>	% w/w	IMPCA 001-14	Min 99.85
<i>Acetone</i>	ppm	IMPCA 001-14	Max 30
<i>Ethanol</i>	ppm	IMPCA 001-14	Max 50
<i>Colour</i>	Pt-Co	ASTM D1209-11	Max 5
<i>Water</i>	% w/w	ASTM E1064-12	Max 0.100
<i>Distillation Range at 760 mm Hg</i>	°C	ASTM D1078-11	Max 1,0 to included 64.6° +/- 0.1°
<i>Specific Gravity 20° / 20°</i>		ASTM D4052-11	0.7910 - 0.7930

¹ International Methanol Producers and Consumers Association

Criteria	Unit	Method	Spec. Limits
<i>Potassium Permanganate Time test at 15°C</i>	Mins	ASTM D1363-11	Min 60
<i>Chloride as Cl</i>	ppm	IMPCA 002-98	Max 0.5
<i>Sulphur</i>	ppm	ASTM D 3961-98	Max 0.5
	ppm	ASTM D 5453-12 ²	Max 0.5
<i>Hydrocarbons</i>		ASTM D 1722-09	Pass test
<i>Carbonisable Substances (Sulfuric Acid Wash Test)</i>	Pt-Co	ASTM E346-08	Max 30
<i>Acidity as Acetic acid</i>	ppm	ASTM D1613-12	Max 30
<i>Iron in solution</i>	ppm	ASTM E 394-09	Max 0.10
<i>Non-Volatile Matter (NVM)</i>	mg/l	ASTM D1353-13	Max 8
<i>TMA</i>		Optional ³	
<i>Aromatics</i>		Optional ³	
<i>UV Transmittance (If UV Grade Methanol)</i>		Various, see below	

Methanol – Tank Washing

- Tanks cleaned to INTERTANKO ‘High Purity’ standard.
- Tanks = Dry, odour free, free of visual residues
- UV spectrum passes if this is **UV Grade Methanol**
- Wall Wash Test (WWT), confirming:
 - Water miscibility test (ASTM D 1722) passes
 - Colour Pt-Co (ASTM D 1209) less than 10
 - Chlorides less than 2 ppm
 - Permanganate time test above 50 min



Methanol – Caution with Previous Cargoes

No banned prior cargoes, but take care with:

INORGANIC AND ORGANIC ACIDS

- Residues will contribute to increased results for acidity in the cargo.
- Inorganic Acids would contribute to high Non-Volatile Matter (NVM).

ALDEHYDES, PARTICULARLY ACETONE.

INORGANIC AND ORGANIC CAUSTICS

- These will contribute to increased Non-Volatile Matter (NVM) contents.

SODIUM CHLORIDE INCLUDING SEAWATER RESIDUES

- These will have a significant effect on the Inorganic Chlorides parameter.

MONOMERS, SUCH AS STYRENE MONOMER

WALL WASH TEST RESULTS				
<input checked="" type="checkbox"/> LOADING		<input type="checkbox"/> DISCHARGE		<input type="checkbox"/> TRANSHPMENT
This is to certify that the below vessel tank(s) were inspected by our attending Surveyors via: <u>PHYSICAL AND VISUAL IN-TANK INSPECTION</u> <u>WALL-WASH OPERATIONS</u> and results are as follows:				
WALL-WASH FINDINGS			DATE : _____	TIME : _____
TANK NO.	VISUAL INSPECTION	HYDROCARBON TEST	CHLORIDE TEST	Potassium Permanganate
	Specs. : Clean & Dry Method : Visual	Specs. : Passed Method : ASTM D-1722	Specs. : Max. 5 ppm Method : Calculated	Specs. : Min. 50 mins. Method : ASTM D-1363
1-P	Clean & Dry	Passed	< 5 ppm	> 50 mins.
1-S	Clean & Dry	Passed	< 5 ppm	> 50 mins.
3-P	Clean & Dry	Passed	< 5 ppm	> 50 mins.
3-S	Clean & Dry	Passed	< 5 ppm	> 50 mins.
5-P	Clean & Dry	Passed	< 5 ppm	> 50 mins.
5-S	Clean & Dry	Passed	< 5 ppm	> 50 mins.
6-P	Clean & Dry	Passed	< 5 ppm	> 50 mins.
6-S	Clean & Dry	Passed	< 5 ppm	> 50 mins.
Remarks: The above operation was witnessed by vessel's responsible officer. The wall wash test and visual inspection were performed at most accessible points in the tank(s) only.				

Methanol – Caution with Previous Cargoes

ANIMAL FATS OR VEGETABLE OILS

- Readily dissolves in Methanol.
- Could, depending on the exact previous cargo, affect the Acid Wash Colour (AWC), Non-Volatile Matter (NVM), Appearance, Colour and/or Odour parameters.



AROMATIC HYDROCARBONS (SUCH AS BENZENE, TOLUENE AND XYLENE)

- Affect the UV transmittance parameter even at very low contaminant concentrations.
- Aromatic Hydrocarbons can remain absorbed in epoxy-type coatings for several voyages.



Methanol – Rectification Methods

Check intended end-use and extent of contamination

BLENDING

- Blending with on spec. MeOH to deal with low ppm figures of foreign cargo contamination (e.g. MEG / Aromatics BTX).

SALE LOCALLY WITH DEPRECIATION

- Less transportation costs, depends on quoted offers and market value. Can be faster. Depends if shore tanks available or Receivers take delivery against LOU.

SALE TO INTERNATIONAL BUYERS

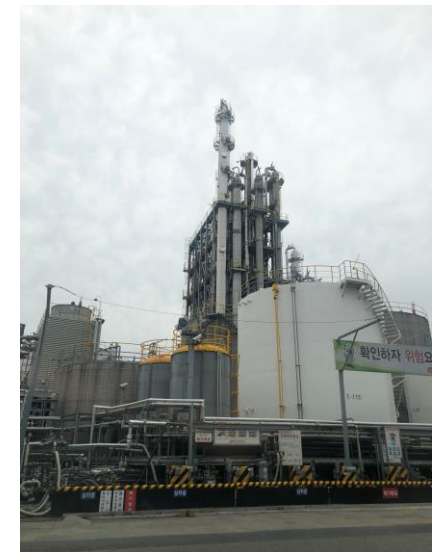
- Subject to market conditions and distance to new Receivers.

RE-PROESSING (E.G. ADDITIONAL PRODUCTION STAGES)

Requires Expert Chemists input and request procedure docs.

DISTILLATION

MEG/Benzene contaminations can be removed by ‘tolling’. Check cost/MT and yield %. Depends on location, e.g. Antwerp, Korea, Houston.



Styrene Monomer – Inhibited Cargo

Basic building block (precursor) of the plastics industry.

Key points:

- Unstable chemical, must be inhibited. SM banned list of previous cargoes.
- Nil polymer when produced. Specification is < 10 ppm polymer.



Styrene Monomer – Inhibition Certificate

Must include:

- The name and amount of inhibitor present (usually TBC), **typically at around 15-17ppm.**
- Whether the inhibitor is oxygen-dependent.
- Date the inhibitor was added to the product and duration of its effectiveness.
- Any temperature limitations qualifying the inhibitor's effective lifetime.
- The actions to be taken should the length of voyage exceed the effective lifetime of the inhibitor.

ACA
AMERICAN CARGO ASSURANCE

CERTIFICATE OF INHIBITOR
(Styrene Monomer)

Vessel: Stolt Groeland Stowage: 6P,6C,9S
Facility / Port: LBC Houston Supplier: Styrolution
Product: Styrene Monomer Surveyor: [REDACTED]
Client Ref#: 8001158394 ACA Ref#: H-191003

We confirm that the cargo loaded as described above has been properly inhibited as follows:

Inhibitor Type: TBC Liquid Target: 17 PPM
Nominated Quantity: 5,250 M/T Added: 9 Gallons
Date Added: 8/7/2019
Days Effective: 60 - 90 DAYS

Inhibitor Statement:
Inhibitor is oxygen dependent. If a nitrogen purge is required prior to loading, the oxygen content of the receiving tanks should be lowered to a level between 5% to 8%.
The minimum oxygen level to maintain the integrity and effectiveness of the inhibitor is 5%.
Ideal temp for this cargo is 60-85F.
Loading Styrene next to heated cargos is not recommended
If these conditions are exceeded, the cargo should be monitored for the inhibitor level and polymerization, adding additional inhibitor as needed.

Check With Client Before Adding Supplied Inhibitor
Emergency contact numbers

ACA [REDACTED]

Issued By: [REDACTED]
On behalf of American Cargo Assurance

Witness: [REDACTED]
Terminal Personnel

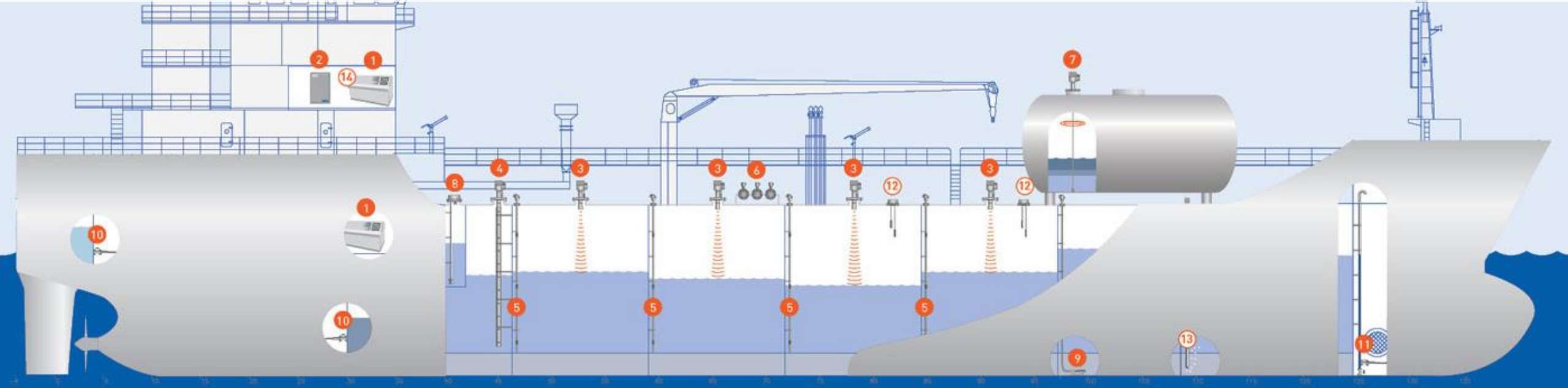
Vessel: [REDACTED]
Chief Mate

Figure 18: Certificate of Inhibitor

Styrene Monomer –Carriage Considerations



Styrene Monomer –Carriage Considerations



1 CARGOMASTER® Computer Unit

2 CARGOMASTER® Signal Control Unit

3 Cargo level radar installation

4 Stillwell installation with cargo level radar

5 Cargo temperature sensors installation

6 Cargo manifold and vapour return line pressure sensor installation

7 Guided level radar installation

8 Pressure sensor installation

9 Submerged pressure sensor installation

10 Sidemounted pressure sensor installation

11 Draught pressure sensor installation

Sub systems:

12 Independent high level system

13 Air purge ballast system

14 Loading calculator

Styrene Monomer – Ship Side Test for Polymer

Add Methanol at a 50/50 proportion as per ASTM D2121 to SM cargo samples.

If **cloudy** = poor solubility of polystyrene in Methanol = Polymer present in the SM.

Styrene Monomer – Polymerisation

If **initial steady increase**, followed by a **more rapid increase in temperature** (over and above the usual slow equalisation of the SM cargo to the ambient water and air temperature) then immediate action must be taken. **Especially if >1°C per day**. This is an exothermic process (heat producing reaction).

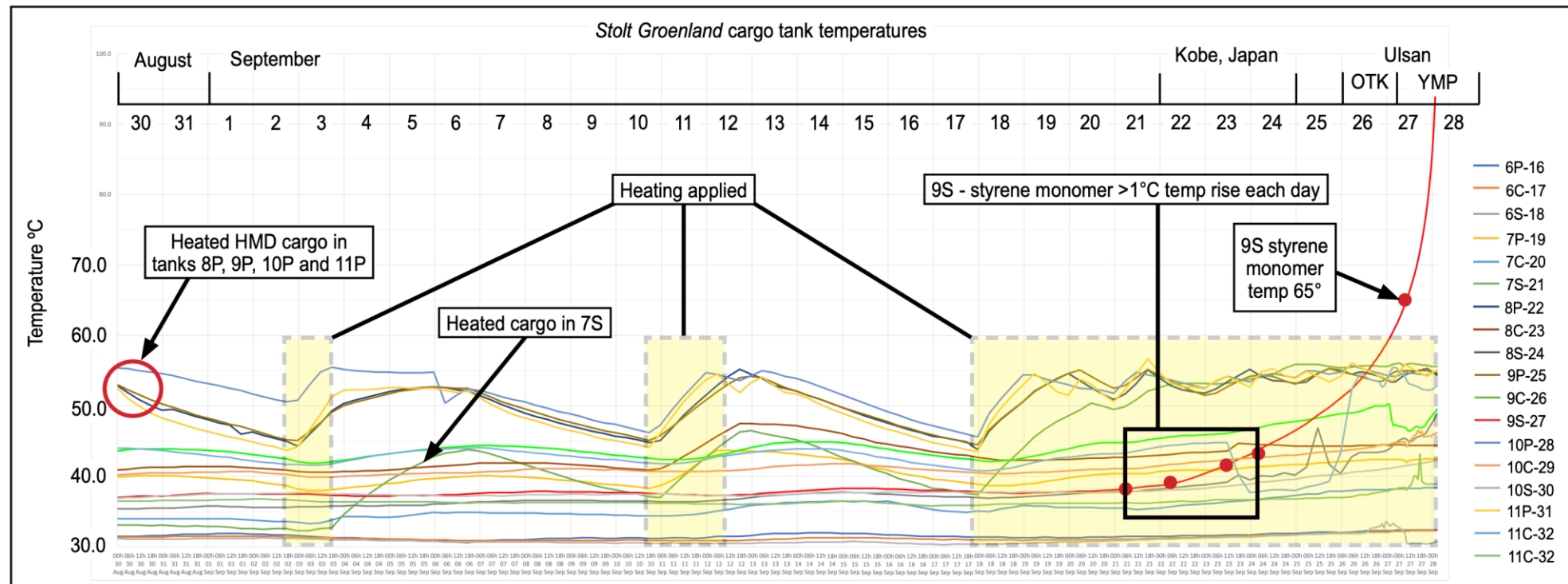


Figure 17: Cargo temperatures recorded on the VDR

Styrene Monomer – Run-away Polymerisation

SHOCK ADDITION OF TBC

- At 0.5% of total SM quantity, i.e. 5MT of TBC per 1,000MT of Styrene Monomer.
- SM aerated via injecting air down the pumpstack stripping line as TBC is oxygen dependent.

Further emergency actions include:

**DILUTION (OR ‘QUENCHING’) WITH SOLVENT
(E.G. ETHYL BENZENE / TOLUENE); or**

DOW-RECOMMEND PHENOTHIAZINE (PZT) STOPPER

- At a concentration of between 200 to 1,000 ppm wt
- Use PZT solid dissolved in SM to a concentration of min. 6% wt/vol)
- As a ‘stopper’ - or sometimes described as a ‘short-stop’.



Styrene Monomer – Removing Polymerised SM

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Styrene Monomer – Mitigation

(1) GET IT DISCHARGED (AGAINST LOU OR VIA SALVAGE DEAL)

- High polymer content is always best dealt with at shore side facilities.

(2) TAKE SAMPLES, ANALYSE, STABILISE AND SALVAGE SELL QUICKLY

- Take representative samples;
- Analyse samples to determine exact Polymer and TBC content; and
- Stabilise the SM cargo via dissolved oxygen and, where necessary, dosing with TBC.
- Then time is of the essence even if the SM is stabilised to reduce overall losses, to establish the more cost-efficient resolution.
- **Legal framework for Salvage Sale** – Letter of Abandonment, R&R, new B/L's, Customs etc.

[Redacted]

To: [Redacted]
Shanghai, P.R. China

Dear Sirs,

LETTER OF ABANDONMENT

VOYAGE DETAILS

Receivers / Lawful B/L Holder: [Redacted]
Shippers: [Redacted]
Owners: [Redacted]
Vessel: [Redacted]
Voyage: [Redacted]
Cargo: [Redacted]
B/L No: [Redacted]

We, [Redacted] CO., LTD, of [Redacted] are the Cargo Receivers and hold valid title to the full amount of [Redacted] MT Cargo under B/L No. [Redacted]

We voluntarily abandon the ownership and/or any rights over the Cargo to Owners. We thereby agree that Owners may dispose of the Cargo in any manner they choose.

We waive any and all claims which we may have in relation to the Cargo against Owners and, further, we indemnify and hold harmless Owners in relation to any claims, costs, expenses and/or liability to any third parties claiming that they are entitled to the ownership (and/or delivery) of the Cargo.

Further, Owners and any other parties related to Owners shall admit that we are not liable for any and all damages and costs arising from, or in connection with, the process of resolving the matter in relation to the Cargo, and shall undertake that we shall not be subject to any legal action including but not limited to claims initiated by Owners and any other parties related to Owners in connection with the Cargo.

Upon receipt of the settlement sum under the Claim Receipt & Release dated 10 May 2018, surrender of the original Bill of Lading and abandonment of the rights arising from, or in connection with, the Cargo, we shall be held harmless by Owners and any other parties related to Owners for any and all claims related to quality of the Cargo.

Page 1 of 2

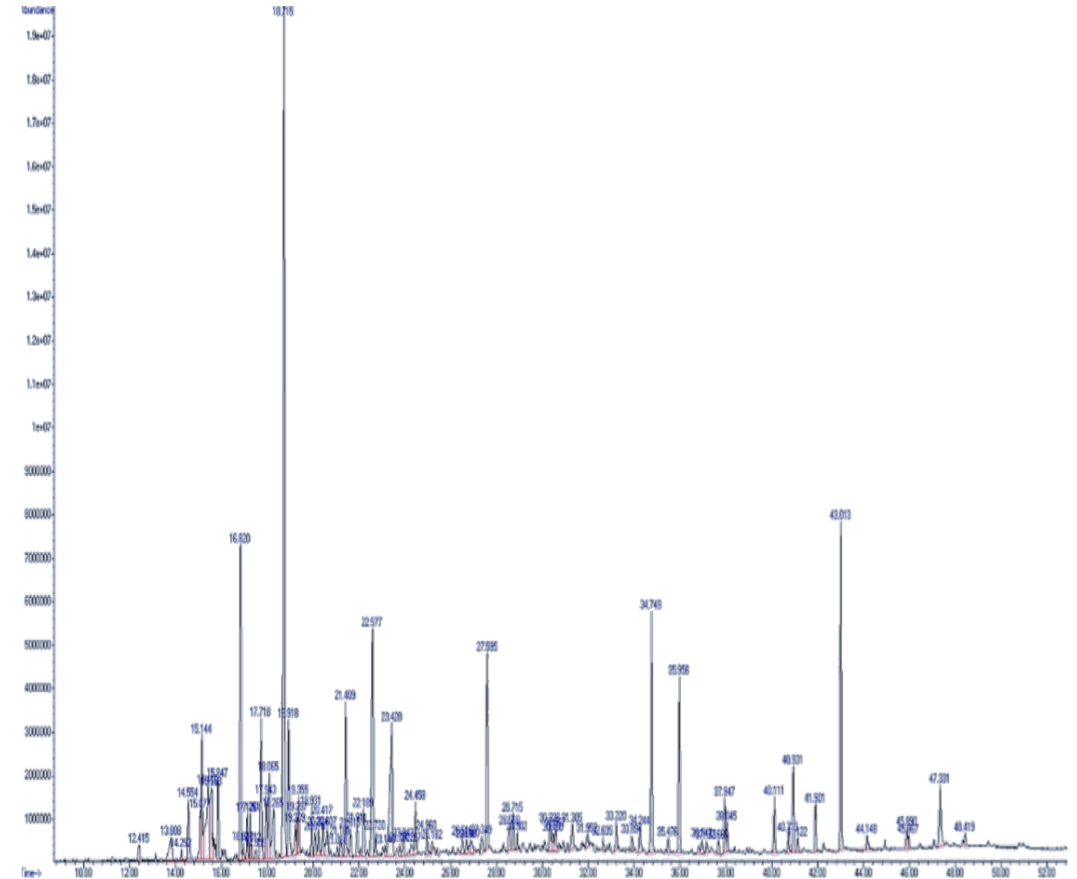
Sampling – Investigative Analysis Methods

① GC-MS (Spectrum)

② FT-IR (Absorption)

③ SEM / EDX (Elemental)

④ Contaminant Extraction



Mitigation Approaches

① Blending / De-bottoming

② Filtration (Physical / Chemical)

③ Distillation / Further Refining

④ Salvage Sale (Local / International)

Claims Handling – Practical and legal aspects

Christine Vella



Contamination claims

- Contractual position
- Burden of proof
- Bill of lading
- Practical considerations
- Caution on litigation privilege
- Conclusion

What is the contractual position?

- Majority of claims from receiver
- Contract of carriage evidenced by bill of lading
- Usually incorporates Hague or Hague-Visby Rules
- Claims via Charterparty – Clause Paramount

What is the contractual position?

Article I (e) of Hague-Visby Rules:

- 'Carriage of goods' covers the period from the time when the goods are loaded on to the time they are discharged from the ship.
- Known as "tackle to tackle" or "manifold to manifold".
- Can be varied by contract: Article VII – the carrier here agrees to be responsible for the care and custody of the goods prior to loading and after discharge of the goods.

What is the contractual position?

- Receiver will often bring a claim in their local jurisdiction

- Inclusion of other terms into the contract of carriage:
 1. China – Chinese Maritime Code 1992 (parts of Hague-Visby Rules)
 2. USA – US COGSA (Hague Rules)
 3. India – Indian COGSA 1925 (hybrid of Hague and Hague-Visby Rules)
 4. Japan – Japan COGSA (Hague-Visby Rules)

What is the contractual position?

Receivers' claim:

- cargo loaded on board in *X* condition, but discharged in *Y* condition

Owners' defences:

- cargo loaded in same condition as discharged – contamination has occurred either pre-load or post-discharge stage

Burden of proof

Who has the burden of proof?

Volcafe Ltd v. CSAV [2018] UKSC 61

The Supreme Court held that, as a bailee, a carrier is liable for loss or damage during the voyage unless it proves on the balance of probabilities that the loss or damage was not caused by any breach by it of its Article III.2 cargo care duties, or that one of the defences in Article IV.2 applies. In order to rely on one of the Article IV.2 defences, the carrier must also prove that the loss or damage was not caused by its own negligence or breach of Article III.2. It is therefore on the carrier to rule out causative negligence.

Bill of lading

- Bills of lading normally prepared by shipper
- Generic cargo description e.g. “*3,221.923 MT Methyl Tertiary Butyl Ether*”
- Ship’s Master and crew are not able to assess the condition/quality of the cargo
- All adds up to: bad starting position for shipowner

Practical Considerations

Pre-loading considerations

Is the nominated grade to be loaded included in the charterparty agreed cargoes?

... for the purpose of carrying all lawful merchandise in particular following cargoes loadable prior to scheduled special survey and dry dock; one to four grades within vessel's natural segregation Clean Petroleum Products (CPP); excluding chemicals, solvents [etc.] ...

- Can the ship maintain different grade separation requirements?
- Can the ship comply with loading, carriage and discharge temperature requirements?
- Is the ship's tank coating suitable for the nominated cargo?

Contamination claims

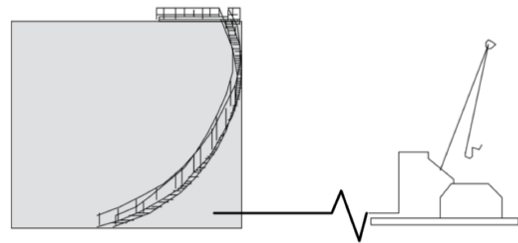
Post discharge considerations

- Compare against load samples – testing protocol
- Was there a contractual specification that the cargo had to meet as part of the sale contract?
- Have receivers suffered any actual loss?
- Steps taken in mitigation? (blending, treating the cargo to bring on-spec etc.)

What helps?

- Good operational practice
- Develop a sound awareness of the need for record keeping
- Keep forms and logs consistent for loading, carriage and discharge
- Make sure all entries are timely, clear (legible) and correct
- Exercise caution with computer generated forms where it is easy to block copy times, dates and commentary
- Act early to obtain statements from witness (Master and crew) and evidence

What helps : Sampling throughout the Voyage



Load Port Terminal

- COQ
- + Shore Tanks
- + Shore Lines

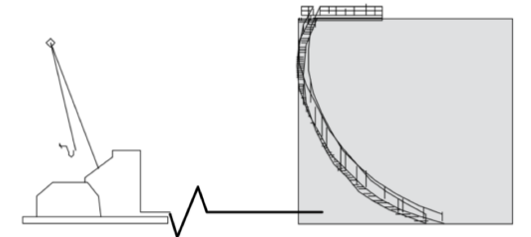


Loading

Carriage

Discharge

- Manifold
- 1st Foot
- Final



Discharge Port Terminal

- + Shore Line
- + Shore Tanks

What helps?

Samples – labelling and storage:

The following information should be clearly recorded:

1. Ship's name
2. Product name.
3. Sample source – tank number, manifold number.
4. Sample type – top, middle, bottom, dead bottom, running, composite.
5. Identity of sampler – surveyor, crew member.
6. Date, time and location – port, berth, anchorage.
7. Seal number.

Caution on litigation privilege

- Documents within SMS are not likely to attract legal professional privilege
- Documents on industry databases are not privileged and may be used to show systemic failures
- Survey documents at early stage of dispute may not be privileged
 - “That litigation be ‘reasonably in prospect’ is not in my view satisfied unless the party seeking to claim privilege can show that he was aware of circumstances which rendered litigation between himself and a particular person or class of persons a real likelihood rather than a mere possibility. *United States of America v Philip Morris Inc. (British American Tobacco (Investments) Ltd intervening)* [2004] 1 C.L.C. 811, 827

Conclusions

- Avoiding contamination claims relies on strong procedures
- If claims do arise they are (usually) legally straightforward
- Often factually complicated and hard to defend due to lack of evidence
- Good evidence is key – good record keeping and good sampling procedures
- Mitigation of loss is key to reducing overall quantum and resolving matters

Conclusions

Protective clauses in the CP can assist

“If required by the Master, then Charterer or their surveyor shall place on board a full set of sealed samples for Owner’s use.”

“SAMPLING: Charterers shall instruct their cargo surveyors to ensure that an additional duplicate set of sealed samples of the cargo (shore side plus loaded ship’s tanks), with completed labels duly signed by cargo surveyors, will be taken and delivered to the ship together with a copy (by email or by hand) of the Certificate of Quality of the cargo loaded.”

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