Carriage of Steel

Loss Prevention Webinar – 30 Jan 2024

Speakers

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Steel cargo

- Plan
- Responsibility
- Hold preparation
- Loading: Stowage and securing
- Voyage: Ventilation, Weather
- Discharge

Steel cargo

Legal requirements for stowage and securing

- CSS Code (Code of Safe Practice for cargo stowage and securing)
  - General guidance on standard and nonstandard cargo

- CSM (cargo securing manual)
  - Specific to the ship normal cargo carried
  - Lashing and securing

Additional advice may be sought from flag/class/experts if certain cargo is not included in CSM

Steel cargo
Pre plan for loading

- Consult the vessel’s Cargo Securing Manual (CSM)

Steel cargo
Plan

- Dimensions
- Average weight
- Tanktop strength
- Tier height and weight of the tiers
- Effective dunnage
- Effective lashings procedures

Steel cargo
Responsibility

- Stowage and securing plans, full cargo manifest - provided before arrival at load port

- Charterers should be responsible for stowage and lashing

- CP clauses should be checked that the responsibility is not being shifted to Master/Members

Steel cargo

Hold preparations

- Holds should be prepared as required (cleaned/washed /dried)
- Hatches should be operational and weathertight
- An ultrasonic weather tightness test is preferred over a hose test
- Testing recorded
- Bilges should be dry and pumps and non-return valves should be operational

Steel cargo
Hold preparations

- Drainage channels be free of debris

Steel cargo

Hold preparations

A bulk carrier cargo hold in a clean condition ready for loading. Dryness of the cargo hold is an important factor in prevention of corrosion/rusting

A cargo ship with box-shaped cargo holds and pontoon 'tween deck ready for loading

Poorly prepared cargo hold on a bulk carrier. Residue from some bulk cargoes can react with, and damage, steel cargo

Unprepared cargo hold on a bulk carrier. Residue from some cargoes can react with, and damage, steel cargo and should be cleaned in line with the applicable MSDS requirements

Steel cargo

Stowage

- Stowage according to the plan
- Overstow –costly

Steel cargo

Dunnage

- Increases friction between cargoes
- Prevent shifting
- Distributes weight
- Assist ventilation
- Certificate- compliant

Steel cargo
Loading

- Dunnage aligned with framing to spread the load
- Experience of stevedores
- Surveyor
- Photo/Evidence
- LOP

Steel cargo
Loading

- Appropriate choking and bracing to stop the movement
- Temperature and monitor weather

Steel cargo

Securing

- As per the cargo securing manual (CSM)
- Avoid lashing which does not secure the cargo to the ship’s structure
- Steel coils are often lashed to each other to form a unified block

Steel cargo

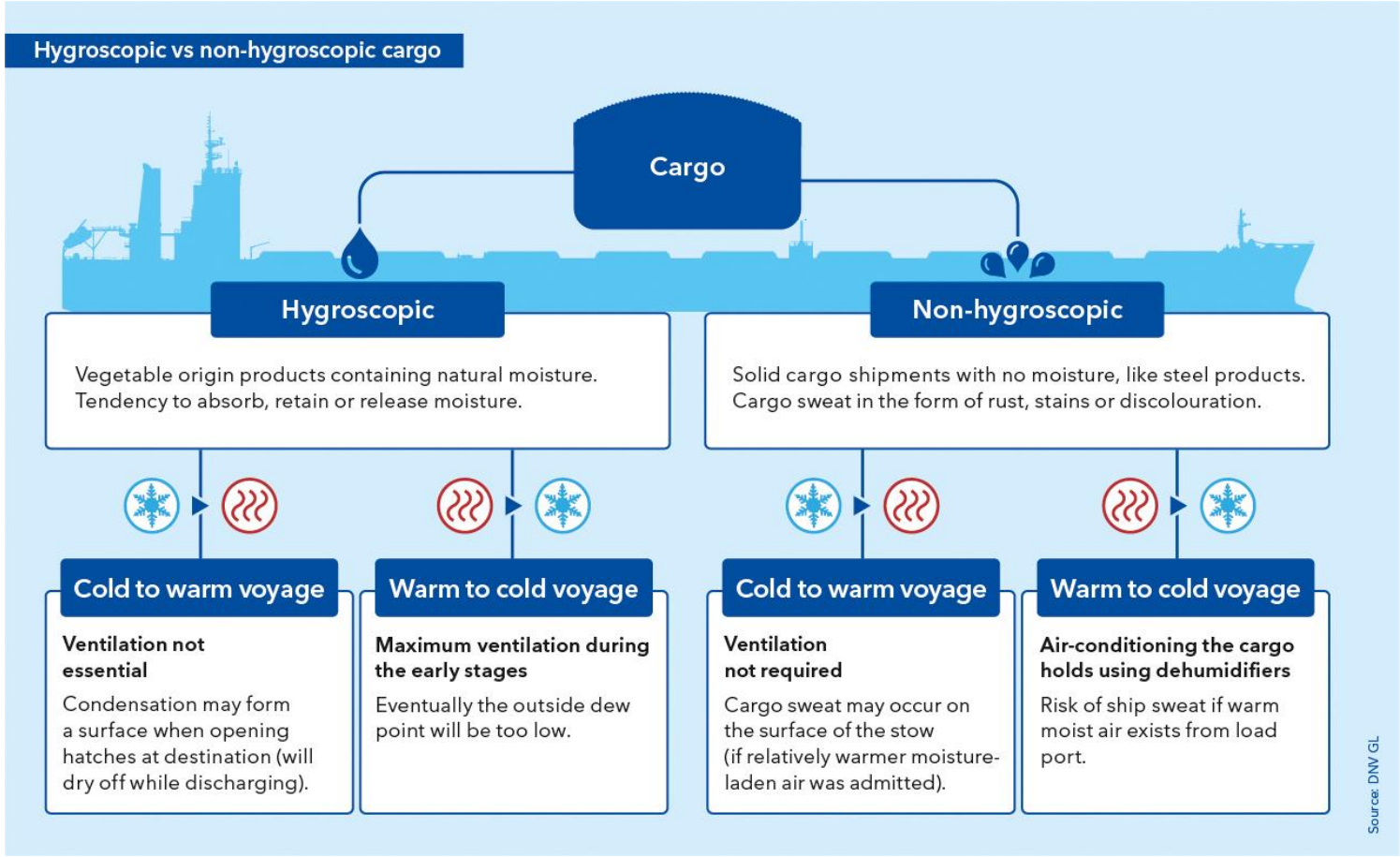
During the voyage

- Heavy weather – manoeuvre to minimize stress
- Hatch covers maintained weathertight
- Ventilation as required/Clarify with charterer
- Visual inspection of cargo regularly
- Record

Steel cargo

Ventilation

- Log



Ventilation Rule

- Three-degree rule
- Ventilate if the dry bulb temperature of the outside air is at least 3°C cooler than the average cargo temperature at the time of loading
- Load port 30C
- Start from 27C
- Stop going higher

- Dew point rule
- Ventilate if the dew point of the air inside the hold is higher than the dew point of the air outside the hold.

Steel Cargo
Discharge

- Correct handling equipment should be used
- Any mechanical damage occurring during discharge should be photographed and recorded
- Avoid precipitation and/or sea spray entering the holds
- The location where the cargo is to be stored

Summary

- Good planning and preparation
- Seek advice/assistance early
- Ship staff to brief and guide
- Record keeping

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Carriage of Steel Products and Risk Mitigation

Colin Jemson - Consultant
Metals and Minerals Department

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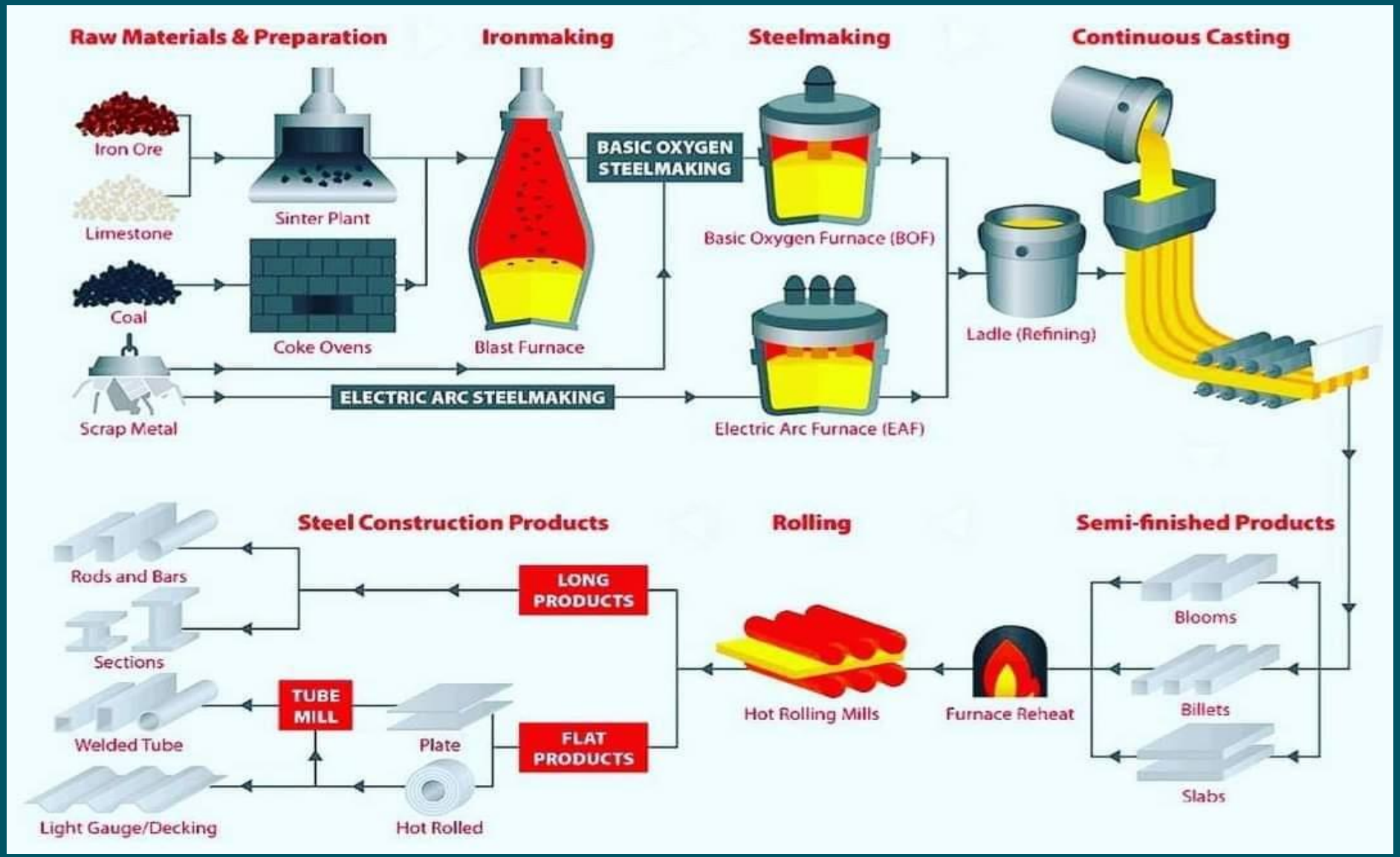
Presentation Outline

- How steel is made – Manufacturing process
- The main steel products shipped
- The main hazards during shipping of steel cargoes
- Overview of potential carriage risks of various steel product types
- Types of steel coils
- Key areas damage can occur throughout the shipping process & the importance of documentation and evidence recording;
  - Pre-loading
  - During loading
  - During voyage
  - During discharge
- Summary – Checklist
- Summary – Records to Keep

Steel Manufacturing



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The Main Steel Products Shipped

- **Finished products – generally higher value, easily damaged & in final form, often wrapped/ protective covering - most important product in terms of potential claim is cold rolled coil.**

- **Semi-finished – further processed at final destination, usually re-rolled - more ‘robust’ slabs, bloom and billets.**

- **As cast or unfinished products - subject to further extensive re-processing - may even be re-melted -tend to be lower value and less easily damaged - ingots and scrap (scrap can be contaminated – fire/ explosion risks).**

The grade of steel (principally the amount of expensive alloy additions it contains) in each of the categories above has a large effect on its value with grades such as stainless steel being of significantly higher value with greater risk of substantial claim to the carrier.

Key Hazards During Steel Cargo Shipping

1. **Moisture - RUSTING (incl. precipitation)**
   ***Seawater* promotes oxidation 10 times compared to freshwater**
2. **Inadequate ventilation**
3. **Handling damage**
4. **Poor stowage**

Overview of potential carriage risks of various steel product types – ‘Semi-finished’

- **Slabs & Blooms – mechanically sturdy but can be “bowed” if not lifted with a suitable spreader bar - customer will insist on flat/ straight product to allow smooth passage through the reheating furnace. Claims can be substantial due to volume of steel affected, some pieces weigh in excess of 30t.**

- **Billets - key is straightness in all directions, billets are easily bent by rough handling – need to be handled with a long spreader bar with fabric slings, to avoid droop. Damage can also be caused by forklift handling where the billets overhang the forklift tines by any appreciable distance.**

- **Billets can be damaged in the producer works when the continuous bar is cut to length resulting in kinked ends due to the forces exerted in the cutting operation. This type of damage is almost impossible to create with slinging operations and claims based on this defect lie with the producer**

Overview of potential carriage risks of various steel product types – ‘Long’ Products

- **Beams/Columns/Sections/Channels/ Rails - key is shape/ straightness hence careful slinging/lifting and carefully placed dunnage – each piece should be directly above the dunnage in the layer below and the spacing not excessive <3m**

- **Pipes/Tubes - often supplied with a coating if damaged will result in a complaint.**

- **Reinforcing Bars (Rebar/Debar) - a ‘lighter’ section and often bundled and susceptible to mechanical damage and bending. Light rusting generally accepted although when in coil form the loss of mill scale during handling makes them more susceptible to rusting. Middle Eastern markets have strict rust standards and will generally reject rusted product. Documented pre-loading condition of bars provides protection from claims if the rusting is not materially worsened during the voyage.**

Overview of potential carriage risks of various steel product types – ‘Plate’ & Cut-to-Length Strip

- **Surface and shape are most important - rust free or at worst with light rusting**
- **Oil splashing on plate surfaces will result in claims, often occurs at producer mill, early identification pre-load**
- **Susceptible to bending - space dunnage at regular intervals, with dunnage placement directly above each other in the stack to avoid bending;**

This spreader bar with 3 equidistant lifting slings will reduce plate bending

Overview of potential carriage risks of various steel product types – ‘Coil’

- **Hot Rolled Steel Coils (HRC) - HRCs & Cold Rolled Coils (CRC)**
- **Covered in detail later – the main product subject to complaint – easily damaged & high value**
- **CRC is produced from HRC - CRC surface quality is critical for most applications.**

A particular risk is coil squashing if loaded below heavier and larger diameter HRC

Hot Rolled Coils (HRC)

- May be stored outside
  - Unpackaged
  - Light rusting not uncommon, accepted by receivers
  - General surface “blanket” of rust, *not* rust involving pitting

- Receiver will rework the surfaces
  - Minor abrasion not an issue
  - Pickling and oiling for rust free products (e.g. CRCs)

Hot Rolled Coils (HRC)

Typical, lightly rusted HRC

Pickling process

Cold Rolled Coil (CRC)

For shipment & storage, CRCs are always wrapped.

Finished product, normally converted to a finished consumer product by the receiver:

- **White goods**
- **Profiled sections**
- **Transport**

Higher value than HRC:

- **Little additional work required, surface quality is critical**
- **Less resistant to distortion**

Re-rolled thin gauge HRC at ambient temperatures

- **Rust free (due to pickling and oiling)**

Cold Rolled Coil (CRC) Showing Different Layers of Packaging

CRC packaged

CRC unpackaged

Steel Coils - Claims

Damage to cargo could have occurred at any time during its life:

- **At the mill**
- **Wharf**
- **During loading/unloading**
- **Voyage**

<u>Observation, reporting and high quality photos are key</u>

Steel Coils – Evidence Collection

- Collect many, high quality, dated and timed photographs:
    1. Before loading
    2. During loading
    3. In the hold
    4. At discharge port

- These help to assess shortcomings from:
    - Steel mill: poor QA/QC
    - Bad practice: loading/discharging by stevedores, care and storage at ports, stowage etc.

- Record any deficiencies, in detail, on the Bill of Lading

- Early involvement of an expert can help

Steel Coils – Evidence Collection: Vessel Pre-Loading

Ship maintenance essentials:

- **Hatches operational and water-tight**
- **Holds completely dry and clean**
- **Bilges dry and pumps operational**
- **Hatch covers dry before opening the hatches**

Steel Coils – Evidence Collection: Cargo Pre-Loading

- **<u>Pre-loading survey is always recommended</u>**
- **Damage to steel product**
  - **Check edges and eye for bending (especially for CRCs)**
  - **Damage to surface of coil or packaging**
  - **Unwinding or loose strapping**
  - **Quantify the damage, the location and any patterns**

❖ ***<u>Photograph and Record Information</u>***

HRC unwinding

Steel Coils – Evidence Collection: Cargo Pre-Loading

Moisture or Seawater Damage

- Check coil surface condition for evidence of rusting
  - Use silver nitrate – seawater oxidises steel <u>x10 faster</u> than freshwater
  - A milky solution = positive for chlorides: <u>however not necessarily seawater chlorides</u>
  - If test is positive samples should be sent for full chemical analysis to an approved laboratory to confirm
  - How have the coils been stored: exposed to precipitation?

Water along coil layers draining to and out of the bottom of the coil. Dark patch on concrete is a silver nitrate test

A positive result using the silver nitrate test on rust areas of a telescoping HRC: will require lab verification

Steel Coils – Evidence Collection: Cargo Pre-Loading

- **Banding integrity**
  - **Check bands around the circumference of the coil and through the eye**
  - **Maintain coil shape, prevent telescoping**

  - **Record and quantify:**
    - **Evidence of damaged straps**
    - **Evidence of unwinding or telescoping**
    - **How much of the cargo is affected**

❖ ***Photograph and Record Information***

Bands were too slack & moved

Well-spaced, tight banding

Steel Coils – Evidence Collection: Loading

- **Equipment:**
  - **Handle with appropriate lifting gear**
    - **Webbing or forklift fitted with rounded tine**
    - **No lifting chains!**
    - **Record as deficiency in handling practice if correct equipment not present**
  - **Examine coil edges for damage**

Forklift with standard forks!
Notice:
1. Damage to coil eye protection
2. Danger and potential damage to coil from lifting high off the ground

Forklift with rounded tine

Steel Coils - Evidence Collection: Voyage

- Temperature and humidity: dew points
- Rust intensity can increase significantly in a 2-6 weeks voyage!
- Record temperature and humidity throughout voyage and ventilate when appropriate
- Cargo Inspection
  - Rectify any displacement in stowage at next port of call

Steel Coils – Evidence Collection: Discharging

Ensure photographic record is kept:

- **Condition of coils**
  - **Rusting extent and intensity**
  - **Damage to shape, edges or surface**
  - **Damage to packaging, water ingress**
  - **Condition of stowage, strapping and banding**
- **Standing water in hold**
  - **If there is evidence of seawater contamination "mitigating action" at the earliest opportunity to limit the continuing accelerated corrosion due to the presence of salt.**
- **Equipment available for discharge**
- **Storage conditions at port**

- **Consider accompanying surveyor at discharge survey, insist on recording all observations (photos with date, time and weather conditions)**

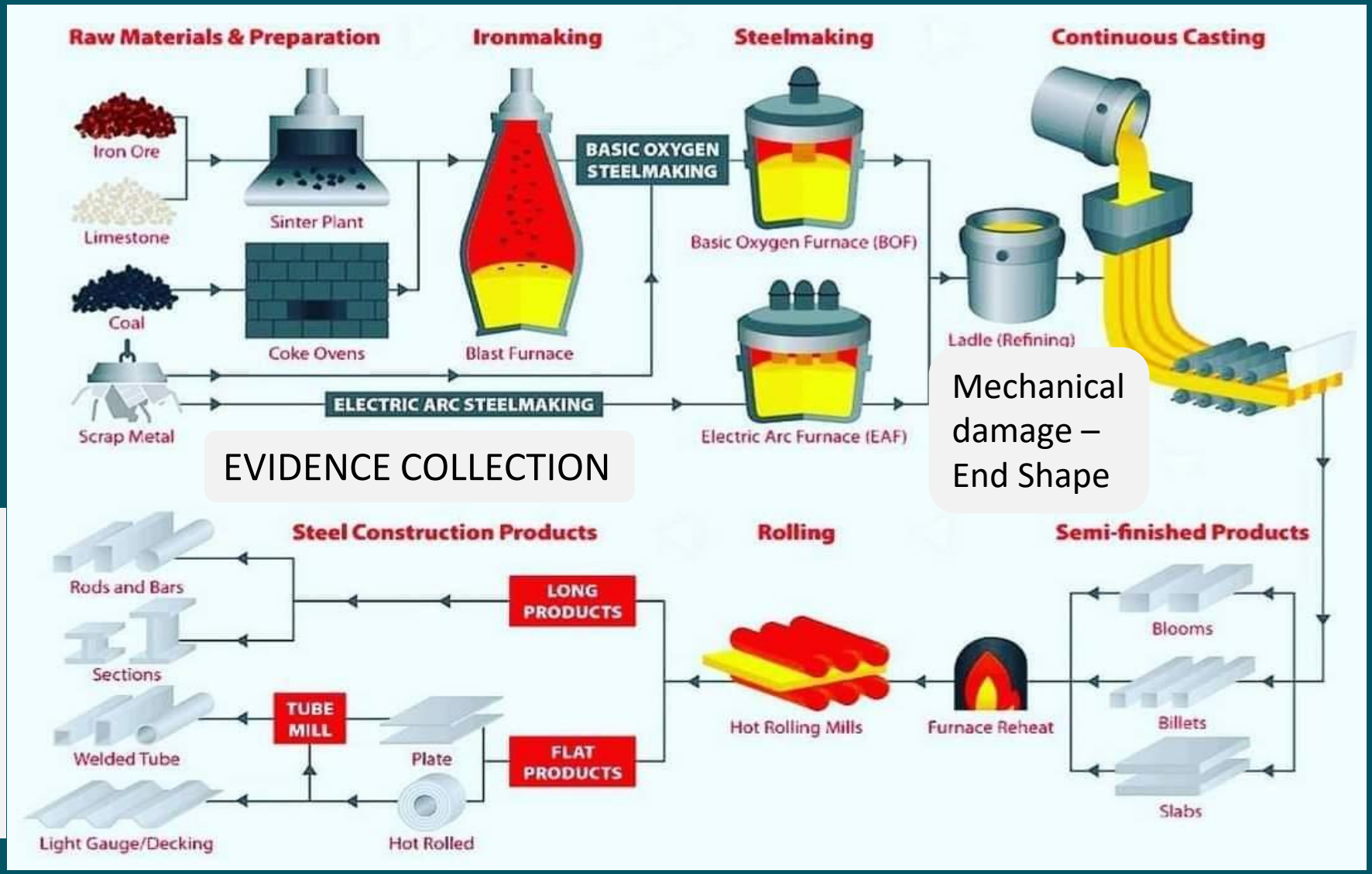
Records to Keep

- Cargo Declaration
- Pre-loading hold inspection report/cleanliness certificate
- Previous 3 cargoes
- Pre-loading survey
- Details of last hatch cover testing e.g. Hose/Ultrasounds test report
- Stowage plans
- Many photos, dated and showing time: before and after loading and on arrival
- Bill of Lading
- Dew point records
- Times of hold ventilation

Records to Keep (continued)

- Deck log book
- Bilge sounding logs
- Letters of protest
- Weather reports during loading and voyage
- Sea Protests if any
- Statement of facts
- Copies of records of communications
- Draft survey at loadport and discharge port
- Records and information about storage facilities upon discharge

Summary



EVIDENCE COLLECTION

Mechanical damage – End Shape

Rust-Salt water Mechanical Damage- Fork Lifts, Slings, Stowage

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Thank you for your attention.

Any questions?

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Legal aspects of steel claims

Bills of Lading and common issues

The duties of the Master

- To accurately record the *“apparent order and condition of the goods”.*
- No expectation for Master to be an expert
  - Common sense
  - Reasonably careful and observant
- Good ≠ Perfect

Importance of accuracy of Bills of Lading

Why does this matter?

- B/L = Transferrable document
- Innocent third party relies on contents to know the cargo condition on loading
- B/L shows damage on loading:
  - Reject cargo under Sales Contract?
  - Claim damages from Seller?
- BUT if B/L suggests no damage on loading
  - Damaged in transit? Claim against Carrier?

Consequences of issuing inaccurate documents

What happens when there is damage, but the bills of lading are issued “clean”

- Carrier likely to have no defence if:
  - Pre-load damage existed
  - Such damage was known to the Master
  - B/Ls nevertheless issued “clean”
- In this case, B/L = fraudulent document
- An act to defraud an innocent 3rd party receiver
- Bottom line: Club cover may be prejudiced **and** the Carrier liable for the cargo damage claim

Genuine disputes

What if there is a genuine dispute as to the condition of the cargo on loading?

- If parties do not agree?
- Surveyor assistance to clause the B/Ls appropriately and accurately
- Clausing should be inserted/ appended to:
  - Mate’s receipts; and
  - B/Ls.

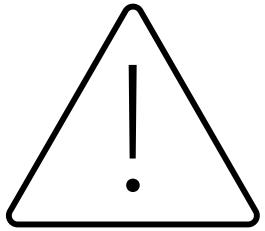
Competing interests

But shippers say they NEED clean B/Ls – what do we do?

- Clean B/Ls may be required under:
  - Sales contracts; and/or
  - Letters of credit
- So can the Carrier refuse to issue clean B/Ls if clean B/Ls are needed?
  - Answer: Yes!
  - This is a Shippers' issue!
- If clean B/Ls are non-negotiable, Shippers should:
  - Provide replacement sound cargo; or
  - Seek to amend their letter of credit terms.

Potential solution 1

LOI



- LOIs commonly offered where there is damaged cargo and clean B/Ls are required
- **<u>However, if clean B/Ls are issued in the knowledge that they misdescribe the cargo, the B/L will be a fraudulent document</u>**
- Consequence?
  - The LOI may be ***<u>unenforceable</u>*** under English law i.e. if the provider of the LOI cannot or will not pay, the Court cannot help
- Therefore, caution should be exercised:
  - An LOI is only as good as the creditworthiness and trustworthiness of the person giving it, and
  - All of the risk is on the recipient of the LOI.

Potential solution 2

The RETLA clause

Example RETLA clause extract:

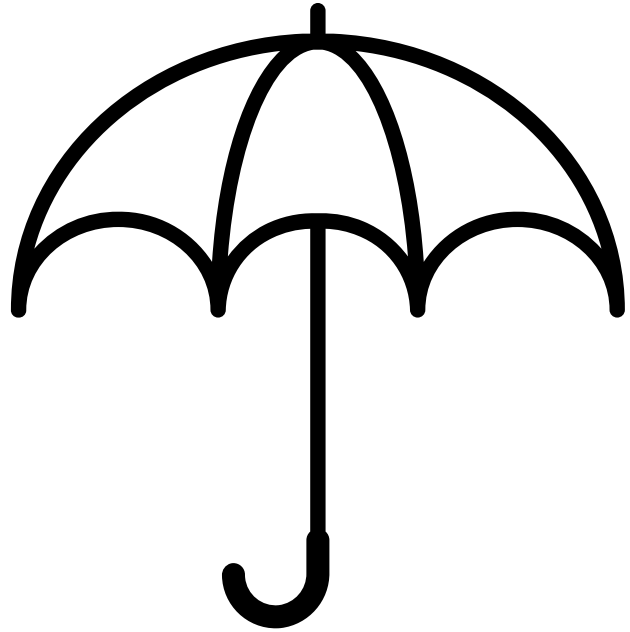
"If the Goods as described by the Merchant are iron, steel, metal or timber products, the phrase 'apparent good order and condition' set out in the preceding paragraph does not mean the Goods were received in the case of iron, steel or metal products, free of visible rust or moisture…"

- A RETLA clause is designed to protect against quality claims where a cargo exhibits defects typical of that type of cargo i.e. rust
- English law position:
  - Breach of HV Rules
  - RETLA clause will **not** protect the Carrier where a cargo contains defects ***beyond those commonly found***
- US law position:
  - RETLA may afford protection

Other scenarios

Loading/discharging during wet weather

- Loading during wet weather is not advisable
- *“Rain letter”* may stand in place of the Club cover
- Proceed with caution
- Wet cargo should not be loaded with dry cargo = contamination risk. Further complicated if multiple B/Ls and parties are involved.



Importance of surveys and timings

Impact on claims

Pre-load surveys can evidence:

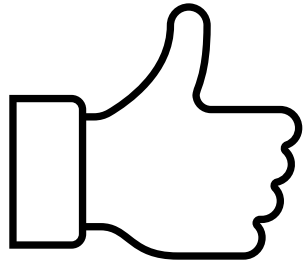
- Rust damage
- Weather conditions and presence of water on cargo packaging
- The condition of any packaging including strapping bands
- Damage caused by stevedores e.g. forklift marks

Discharge surveys

- Prompt appointment of surveyor
- Establish cargo condition after voyage/ at the time of discharge, before any damage worsens

Surveys = Contemporaneous evidence

Key points
Best Practice



- The Club is on hand to assist with surveyor appointment
- Prompt instruction of surveyors is recommended
- Be aware of CP terms re: B/Ls and agreement re: LOIs
- B/Ls must accurately describe the cargo condition
- If agents are authorised to issue B/Ls, Master should provide wording for any clausing
- Crew to be observant and notify concerns re: cargo damage to Master/ surveyor
- Wet cargo should not be loaded with dry cargo
  - Caution should be exercised in the case of “rain letters”, which will stand in place of Club cover
- If RETLA clause is being used, what is the jurisdiction: English law/ US law?
- LOIs are only as good as the trustworthiness and creditworthiness of the issuer and Club cover may be prejudiced

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