



Product Information and Claims Policy

April, 2016

Corporate Technical Data Provisioning

As a matter of policy, NLMK USA defines specifically what forms of technical data will and will not be shared with requests from customers. Technical information is controlled and managed by the Quality & Metallurgical Engineering organization.

Shared Information. Generally stated, internal documentation that describes or characterizes the product (i.e., Product Variable Data) can be supplied upon specific customer request. This includes, but is not limited to the following list:

Mechanical Properties, Final Chemistry, Scarfing Results, Inclusion Analysis, Gauge Traces, Width Traces, Profile Traces

Proprietary Information. Generally stated, internal documentation associated with specific mill practices, procedures and methods of production (i.e. Process Variable Data) are construed as proprietary and as such will not be supplied upon customer request. Justification for this non- provision policy because mills utilize different set-up parameters to achieve similar results. Additionally, the information listed below is considered to be of a proprietary nature.

Charged Raw Materials, Commodity Additions, Intermediate Chemistries, Processing Speeds, Temperature Traces, Internally Controlled Standard Operating Practices

Quality Audit Information. During internal audits performed by a customer of NLMK, process variable data can be reviewed in real time during processing in the mill pulpits along with SOP documentation. General, non-specific discussion about process set-ups can occur during the audit. However, no supporting documentation or data in electronic or hard-copy form will be provided to the customer during or as follow-up to the audit for the reasons stated above under the proprietary information heading.

Product Qualification vs. Production Orders. Other than information that is supplied on a standard metallurgical certification (i.e., hardness, mechanical properties), product characteristic information will be provided upon request during qualification trials and other developmental initiatives during which information sharing is jointly defined by mutual agreement between NLMK and the customer. Once in production mode, this information will not be provided on a consistent basis unless there is a justified product excursion or perceived non- conformance detected at NLMK or in the customer's facility. Any exceptions to this policy will need to be approved in advance by NLMK Quality.

Production Part Approval Process (PPAP). If a customer order is to be considered a formal PPAP item, it must be discussed and agreed upon during the process of initial order receipt by NLMK. Once an order has been entered by NLMK and processing has been initiated, it cannot be declared a PPAP item after the fact. All product data items to be shared as part of the PPAP process must be mutually agreed upon before production is initiated.

Product Descriptions

Hot Rolled Black Product. This product is supplied in the as hot rolled state, and is shipped with a mill edge without further processing of pickling, edge trimming and/or temper passing. The customer must accept a maximum of 25 feet on either end of the coil that exceeds gauge or width tolerances. The coil inside diameter is nominally 30 inches on product produced by NLMK Indiana and nominally 28 inches on product produced by NLMK Pennsylvania.

Cold Rolled Product. This product is supplied in the as cold rolled state. Product can be supplied either in a full hard state, or as a fully finished product to given hardness levels, subject to inquiry. The coil inside diameter is nominally 24 inches. A coil inside diameter of nominal 20 inches is available as an extra. All cold rolled product is shipped with a cold mill edge. Edge trim last product is offered as an extra. The customer must accept a nominal amount of head and tail off-gauge footage on full hard coils shipped direct off the cold mill.

Galvanized Product. This product is supplied with a zinc coating applied to the strip by a hot dip process. Products are offered either as Minimum Spangle or Extra Smooth. Minimum spangle product has no visible spangle, and is available in the full range of coating weights and base metal qualities. Extra smooth product is produced by a skin pass operation after galvanizing, and imparts a smooth finish to the product that is suitable for painting, while providing additional resistance to stretcher strain and fluting. A coil inside diameter of 24 inches nominal is available for all gauges. A coil inside diameter of 20 inches nominal is available for gauges below .070" MIN.

Galvannealed Product. This product is supplied with a zinc-iron alloy coating on the strip produced by applying an annealing operation subsequent to the hot dip galvanizing process. Products are offered only as Extra Smooth. Extra smooth product is produced by a skin pass operation after galvanizing and galvannealing, and imparts a smooth finish to the product that is suitable for painting, while providing additional resistance to stretcher strain and fluting. A coil inside diameter of 24 inches nominal is available for all gauges. A coil inside diameter of 20 inches nominal is available for gauges below .070" MIN.

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PURPOSE

This policy is designed to establish formal documentation of key philosophies and procedures regarding disposition of claims and the justification behind the disposition. It is not intended to be an all-inclusive document covering all scenarios that may arise. NLMK USA reserves the right to handle each claim individually, based on the circumstances surrounding the claim in question.

SCOPE

By its very nature, parameters surrounding steelmaking and finishing processes cannot always be precisely known. It is therefore technically impossible to provide unconditional assurance of complete compliance with all prescribed requirements. As an example, variation in temperature control cannot always be regulated with exactness, and as such, induces a small amount of variation in mechanical properties of the material within a given coil or coil-to-coil within a given heat/order quantity lot. It is therefore not reasonable or practical to guarantee detection and rejection of every portion of a steel coil that varies from required specifications with regard to dimensional tolerances, chemical composition, mechanical properties, internal conditions, or surface quality. Such factors are considered in the dispositioning of claims by NLMK USA, herein referred to as 'the supplier'.

All claims submitted to the supplier by the customer will be evaluated by the Technical Services Group on the basis of technical merit and in accordance with established policies and procedures. Disposition will be made on an individual basis subject to the outcome of the claims investigation, which hinges primarily on integrity of the supporting information provided by the customer.

The minimum required information to investigate a claim shall be as specified in Section 5.0. Heat and order numbers alone do not facilitate traceability to actual process conditions occurring during manufacturing. When this information is not available with submittal of a rejection, it is often not possible to fully analyze and determine the root cause of the failure. As such, full claim disposition and formal corrective action may not be possible.

Unauthorized deductions occurring prior to submittal, disposition, and settlement of a claim constitutes nonpayment. Subsequent consequences include but are not limited to shipping hold, credit hold, and / or loss of discount privileges.

GENERAL REQUIREMENTS

The following individual parameters apply generally to all customer claims submitted to the supplier.

- 1.0 *Procedure:* If material furnished by the supplier does not meet order requirements, a claim should be submitted with the necessary supporting information. All claims should be submitted by the customer to the **appropriate technical services engineer** assigned to the customer account. All claims will be evaluated on the basis of technical merit in line with published policies, applicable specifications, contracts, purchase orders, and other defining information.
- 2.0 *Limitation of Remedy:* The extent of acceptable remedy arising from a defective product condition shall be limited to the replacement (invoiced) cost of the material plus original freight charges. The supplier shall not accept liability for consequential or incidental damages such as processing charges, loss of production, or freight to intermediary processing or storage locations. Only initial freight cost from the supplier to the original Ship To address is honored on the claim unless otherwise negotiated on an individual case basis. No claim may be brought against the supplier by the customer if the elapsed time from the date of shipment exceeds one (1) year. The date of shipment references the date in which the material shipped to its first receiving point beyond the mill (i.e., the customer facility, OSP operation, a storage facility, or any other intermediary destination point).
- 3.0 *Defective Material Processing:* It is expected that the customer process 10% of invoiced coil weight to determine if the encountered defect merits a justified claim to the supplier. When the defective condition goes beyond 10% of the coil's weight, the customer must get prior approval from the supplier to continue with processing of the defective coil. This includes blanks, cut lengths, or slit mults from master coils.
- 4.0 *Right to Rework:* The supplier reserves the right to request return of defective material to the facility and rework the product if doing so is believed to rectify the condition.
- 5.0 *Provision of Supporting Evidence:* So as not to delay the dispositioning process, the customer must submit basic coil

identification information with the initial submittal of the claim that includes but is not limited to the supplier's coil number, claim weight, current size, current dimensions, current condition, and the physical location of the coil. It is the customer's responsibility to provide adequate information in support of the defective condition. This includes, but is not limited to, physical samples of the condition, digital photographs, streaming video, and inspection maps, including detailed descriptive information. Such information must be provided at the point of claim submittal so as to immediately initiate the investigation. Failure to make these provisions in a timely manner on the part of the customer will lead to a decline disposition on the claim.

LIMITATION OF LIABILITY

- 6.0 *Reject By Association:* Typically, a defective condition is isolated to a single master coil. That is not to imply that multiple coils cannot be involved in a nonconformance, but the supplier does not customarily accept claims for rejects by association without sufficient supporting evidence that the condition is present within each rejected master coil. For example, it cannot be assumed that a lamination present in a single master coil implies that every coil on the same *heat/order* contains the condition.
- 7.0 *Purchase Order 'Aim' Specification:* The supplier will make every attempt to meet 'aim' requirements specified by the customer. Failing to meet such an aim requirement does not constitute a valid claim.
- 8.0 *Part Production / Fabrication Guarantee:* While advance review (via the Technical Inquiry Process) of potentially difficult applications that are to be produced from the supplier's substrate is critical, the supplier does not 'guarantee parts'. Once the supplier agrees to be technically capable of producing a part after such part review, the properties and material characteristics required by the customer to make the part must be fully defined. The supplier will guarantee to produce and certify material properties to these defined property requirements, as agreed upon through joint product development with the customer.
- 9.0 *'Fit For Use' Requirements:* The supplier expects customers to use reasonable judgment in defining fit-for-use requirements that truly align with the actual end use requirements. A claim shall be declined if the technical investigation reveals an unreasonable

discrepancy between actual end use requirements and the nature of the defect and its extent or severity.

- 10.0 *One-Sided Prime Products:* NLMK Indiana offers some Hot Rolled products as 'one-sided prime'. All one-sided prime products have the prime surface on the top surface as shipped from the mill. Claims for superficial conditions on the non-prime side (bottom side) will not be honored. Such conditions include, but are not limited, the following: laminations, roll marks, pits, gouges, and scratches.
- 11.0 *Customer-Coordinated Outside Processing / Storage:* When the customer contracts processing or storage outside of the customer's facility, the supplier considers the outside processing / storage facility (OSP) as a sub-contractor of the customer. This applies to all references to 'the customer' in this document. To this end, all claims submitted by the outside processor on behalf of the customer are subject to the following rules:
- 11.1 Sufficient evidence of a defective condition in unprocessed material must be submitted in order to sort out liability as to the source of the condition. For example, if a condition has the potential to be created at the supplier or the OSP, the burden of proof lies with the customer to provide evidence that the condition was incoming from the mill.
- 11.2 Since the OSP is a sub-contractor of the customer, a customer representative must be present for any inspections conducted on site at the OSP by the supplier's technical services engineer.
- 11.3 While data collection and inspection of the material occurs at the OSP, resolution of the claim will occur directly between the supplier and the customer who purchased the substrate material from the supplier.
- 11.4 All other elements of this entire claims policy apply to the specific case of handling claims at a customer-coordinated OSP.
- 12.0 *Secondary Product:* Secondary product is sold on an 'as-is' basis only, with no warranty whatsoever expressed or implied. Only clear evidence of gross product misrepresentation will be considered on claims for secondary product. Additionally, the

stated specific reason a certain product is classified as secondary may not always include all of the imperfections existing in the product. This condition is not to be construed as a misrepresentation.

- 13.0 *Shipment & Freight:* The following requirements apply to liability associated with material transport:
- 13.1 *General Liability:* On F.O.B. point of shipment orders, the supplier completes its obligation to the customer when the material is loaded onto the mode of transport specified as on the Purchase Order. The title of ownership and risk of material loss passes to the customer under these conditions. Consequently, the buyer must negotiate directly with the delivering carrier in the event of transportation claims associated with the shipment.
- 13.2 *Shipments By Rail:* When rail shipments are received, any damage or other nonconforming condition that appears to be associated with rail transit is the responsibility of the railroad. The receiver must notify the rail carrier at time of receipt prior to unloading, and the rail carrier will instruct the receiver of the unloading and inspection procedure at that time. The supplier's Technical Services Group shall be notified after the rail carrier has been notified and the unloading instructions have been issued. Failure to follow these requirements will forfeit the customer's right to a claim with the rail carrier, and will render the supplier unable to assist in pursuit of any claim against the rail carrier.

PROHIBITIONS AND EXCEPTIONS

- 14.0 *Lamination Defects:* The supplier does not accept claims for singular or a low level concentration of lamination defects in coils. It is possible to experience a baseline low level of laminations or slivers in a coil, and it is the supplier's expectation that the customer will work through such conditions, debiting back only those portions of the coil(s) that are unusable. If such defects are concentrated in coils, master coil rejects can be considered as justified.

15.0 *Product Specific Material Testing Policies:*

- 15.1 *Metallurgical Testing Deviations:* As a matter of policy and mill capabilities, the supplier will not test any material over 0.500 in. thick. This policy includes, but is not limited to, the following products / specifications:

ASTM A36
ASTM A1018 SS Grade 36
ASTM A1018 SS HSLAS Grade 45, 50, 55, 60
ASTM A572 Grade 45, 50, 55, 60

The supplier has developed processes that will produce material consistently to the above specifications. Material over .500 in. thick, or not tested by customer request, is sold on a "for conversion to" basis for these specifications, and the responsibility for testing according to ASTM specifications lies with the purchaser of the materials described above. Please reference published capability documentation or contact your NLMK Technical Services representative for additional information.

- 15.2 *HSLA Metallurgical Testing (hot rolled, uncoated products):* The supplier will test, at a minimum, two (2) coil ends per heat applied to a customer order on the HSLA product line in accordance with the ASTM standard. Deviations or waivers from the standard, as initiated by the customer, will be accepted if the order has not been produced (i.e., currently not work-in-process). Acceptance of deviations is contingent on the fact that the customer must perform actual testing internally or at an outside facility so as to be compliant with the ASTM standard. Deviations from the standard, as initiated by the customer, will *not* be accepted if the order has already been produced (i.e., currently exists as work-in-process) on the grounds of the complications this creates (re-routing, rescheduling, paperwork adjustment, re-marking of coils, relocation of coils) and the enhanced possibility for error. Should a customer desire to waive testing across the board or indefinitely, written documentation must be kept on file with Customer Service, or the product must be ordered as "for conversion to" the appropriate ASTM specification.

15.3 PVQ / ASTM A414 Customer Approved Testing:

Definitions: References to 'the ASTM specification' will infer ASTM A414/A414M – 14 (Vol. 1.03).

ASTM A414/A414M – 14 (Vol. 1.03): The specification cites the following certification requirements in Section 10, Certification and Reports. Testing location requirements are outlined in Section 6, Mechanical Property Requirements:

Number of Tests: Three tensile tests shall be made from the product of each slab as rolled.

Location & Orientation: (6.1.2) Tensile test specimens shall be taken at locations representing the front, middle and back end of each slab as rolled, (6.1.1) . . . shall be taken from the full thickness of the sheet, (6.1.2.1) . . . shall be taken from a location approximately halfway between the center of the sheet and the edge of the material, (6.1.2.2) . . . shall be taken with the axis of the test specimen perpendicular to the rolling direction (transverse test) (6.1.2.3).

The manufacturer shall furnish copies of a test report showing the results of the heat analysis and mechanical property tests made to determine compliance with this specification. The report shall include the purchase order number, specification number, and test identification number correlating the test results with material represented.

Customer Ordering Requirements: Given these requirements, the supplier will take the following position on test certification to the ASTM specification:

If the customer purchase order specifically states required compliance to ASTM A414, coils can be kept full size, and a body sample collection will be obtained via a plasma cut at the approximate mid-point of the coil. A certified metallurgical test report will be provided with the shipment that meets the requirements of Section 10 of the ASTM specification.

If the customer purchase order makes reference to the fact that material is to be produced 'for conversion to ASTM A414', or any variation on this language, the supplier will not be required to internally test the material prior to shipment. As such, the customer accepts full responsibility for compliance to the specification.

16.0 Rust Claims on Hot Rolled, Cold Rolled and Coated Products: The supplier will investigate each rust claim submitted on hot rolled, cold rolled and coated products. The following criteria apply to these materials:

- 16.1 Material that has been in inventory unprocessed at a customer's facility for more than sixty (60) days will be subject to decline in the presence of a rust condition. Material in inventory with less storage time than this does not constitute automatic acceptance, and will be critically evaluated on a case by case basis.
- 16.2 Any existing rust, or damage/wet condition noted incoming must be noted on the receiving paperwork by the customer and forwarded to the Technical Services Group.
- 16.3 Received cold rolled and coated product coils should not be unpackaged until the steel has reached ambient temperature to prevent condensation, as noted on the coil packaging. Once in inventory, it is the customer's responsibility to maintain a storage environment that is temperature controlled, free of casual water intrusion, and free of any other condition that would induce the formation of rust or oxidation. Other rust conditions observed that would appear to be sourced will be handled case by case and in accordance with the other components of the rust policy.
- 16.4 If specific rust preventative oiling practices are required, such information must be included on the customer PO to the supplier. If no specific requirements are specified, the standard practice will be a 'light RP oil'. Claims cannot be submitted for the standard practice if advance notification did not occur. All non-standard oil requirements should be inquired through the Technical Services Group.

- 16.5 The customer or intermediary processor must identify and take exception to a wet or damaged packaging condition within three (3) days of receipt of material. Failure to comply with this requirement may lead to a decline of the claim by the supplier.
- 16.6 Any rust or damage condition noted incoming must be noted on the receiving paperwork by the customer and forwarded to the Technical Services Group.
- 17.0 *Standard Non-Rejectionable Hot Rolled Product Characteristics:* The following standard non-conformances are considered to be inherent to the applicable product and process and are not justified claims.
- 17.1 *Coil Ends:* The as-hot rolled coil front end is uncropped and will contain a nominal length of 25 ft. or less that will be intentionally coiled hot. This portion of the coil may fail to meet customer specific mechanical properties or hardness, and will also tend to exhibit heavy mandrel reel kinks, crossbreaks and some rolled in debris. Additionally, the first 25 ft. and the last outer diameter lap of an as-hot rolled coil may fall outside customer-specific or ASTM standards for gauge and width, and is not considered rejectionable.
- 17.2 *Shape:* If a customer orders a hot rolled product that is deemed 'shape critical' (i.e. for cut-to-length / sheeting, etc.) the product must be temper passed, up to mill capability limits, prior to shipment. The purchase order submitted to NLMK should indicate 'shape critical – must be temper passed'. Shape, by definition, includes center buckle, quarter buckle, edge wave, crossbow, and any other sheet distortion associated with differential strain or stored energy in the as-hot rolled band. If a customer orders a hot rolled product with a minimum ordered gauge of 0.0799" or less, the product will be temper passed for flatness control. If the customer desires to waive the temper pass, written documentation must be kept on file by customer service, and shape claims will not be honored.
- 17.3 *Surface Finish:* The supplier does not guarantee to produce a controlled surface finish (RA) on as-hot rolled or hot roll pickled material.
- 17.4 *Surface Critical Quality:* The supplier will accept orders specified as 'surface critical'. Base standard for production is as outlined in ASTM A6 (coiled plate – for conversion to A6) and ASTM A568 and A635 (coiled sheet). Exceptions to these standards, including the need for a surface critical end product, must be included clearly on the customer purchase order and approved for production in writing by the supplier (via the order acknowledgment) prior to production. Given the dichotomy of critical surface requirements on hot rolled products, the customer should have some anticipation of the potential for higher yield losses, not all of which will be accepted on claim back to the supplier. The following parameters define this further.
- 17.4.1 The maximum gauge for a surface critical order that can be accepted is 0.510 in. MIN.
- 17.4.2 All rejectionable conditions are to be excluded from the first 25 ft. of the ID lap and the entire outside wrap of the as hot rolled coil, provided the defective condition is not deemed to be of an atypical frequency and/or severity.
- 17.5 *Surface Pitting / Depressions / Roll Marks:* Rejections for surface conditions on hot rolled material with thicknesses greater than or equal to 0.625 in. will generally not be accepted (but will be reviewed case by case). For these defects on thicknesses less than 0.625 in. (even if material is below 0.510 in. and is ordered 'surface critical'), the following criteria apply:
- 17.5.1 On a CTL product, there must be more than five (5) individual occurrences of pits in a given sheet length for the sheet to be considered rejectionable AND . . .
- 17.5.2 The thickness of the material falls locally below the ordered minimum gauge as purchased due to the depth of the pit / surface depression OR . . .

- 17.5.3 The depth of the pit / surface depression exceeds 0.010 in.
- 17.6 *Crossbreak / Coil Break Defects:* If a customer desires that commercial quality or drawing quality shipments be free of coil breaks, crossbreaks or strain marks, the material must be ordered as temper passed. The temper passing operation is not employed in the standard routing for commercial quality and drawing quality shipments and must be specified on the customer's purchase order by agreement with the NLMK Commercial Department. All purchase orders for material considered to be crossbreak sensitive must explicitly state 'must be temper passed'.
- 17.6.1 *Commercial Steels:* Material designated as "CS, CQ, etc." shall be considered as commercial quality and shall not be guaranteed as being free from coil breaks, crossbreaks, or strain marks unless ordered as 'must be temper passed'. Refer to Section 16.0.
- 17.6.2 *Drawing Steels:* Material designated as "DS, DQ, etc." shall be considered as drawing quality and shall not be guaranteed as being free from coil breaks, crossbreaks or strain marks unless ordered as 'must be temper passed'. The customer is advised that due to its mechanical properties, drawing quality is inherently susceptible to coil breaks, crossbreaks and strain marks in the absence of a temper pass operation. Refer to Section 16.0.
- 17.6.3 In general, crossbreaks are graded based on surface relief. A crossbreak is generally considered to be acceptable if it has no surface relief, even if it is visible cosmetically on the surface. If a customer requirement demands that even a cosmetic crossbreak is rejectionable based on end use application (i.e., product is exposed or will be painted), this information must be provided to the supplier with the purchase order during the order development process.
- 17.6.4 Any claims that may arise regarding crossbreaks where the above criteria are not met are subject to decline on a technical basis. HR-DS application
- requirements should be reviewed in advance with the Technical Services Group.
- 18.0 *Standard Non-Rejectionable Cold Rolled Product Characteristics:* The following standard non-conformances are considered to be inherent to the applicable product and process and are not justified claims.
- 18.1 *Full Hard Coil Ends:* The head and tail end of an as-cold rolled full hard coil without subsequent processing will exhibit off gauge in the range of 75 to 150 ft. per end depending on the set-point or target gauge.
- 18.2 *Full Hard Shape:* There is no definitive shape standard for a cold rolled full hard product. Shape on a full hard product is not guaranteed without subsequent tension leveling.
- 18.3 *Full Hard Residual Surface Solution (Grade 80 Policy):* Full hard coils are considered commercially clean, and will contain a residual level of rolling solution carryover on the surfaces inherent to the process. Excessive levels of solution carryover may produce a stain that deems the condition to be unnatural to normal tandem mill processing ('non-commercially clean'). If the customer's process is sensitive to normal, residual solution carryover (i.e. coating adherence), it is the responsibility of the customer to adequately clean the surface of the strip prior to processing / coating. Residual solution carryover can oxidize to form a stain and/or rust if the material is held in inventory for extended periods of time. It is the customer's responsibility to ensure CRFH material is consumed within sixty (60) days or less from the date of receipt of the material. Failure to meet these requirements, including observation of severe stains / rust conditions that may have been prevented through more timely consumption of the material, will constitute denial of the claim.
- 18.4 *Surface Cleanliness:* The supplier's substrate in a cold rolled and annealed condition is not to be compared or considered comparable to a tin-mill product with regard to surface carbons, iron fines, or cleanliness. The supplier and customer shall establish surface cleanliness requirements in advance of the purchase order when

surface cleanliness is considered a critical parameter by the customer. Claims associated with surface cleanliness are subject to decline if advance notification of such requirements did not occur.

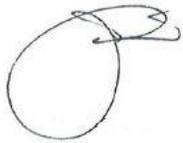
- 18.5 *Dry Product:* The supplier will assume no liability for all types of rust associated with dry temper rolling practices.
- 19.0 *Standard Non-Rejectionable Coated Product Characteristics:* The following standard non-conformances are considered to be inherent to the applicable product and process and are not justified claims.
- 19.1 *Applicable Specifications:* All hot dip galvanized and galvanized products are produced in accordance with ASTM A653 and A924 standard specifications.
- 19.2 *White Rust Conditions:* The customer should note that chemical treatment and applied oil will help to increase the shelf life of coated material, however, this assumes reasonable measures are taken to protect the product, such as atmosphere controlled storage and adequate, undamaged packaging. Chem-treat provides better protection than straight oil, and oil is better than a dry product. Hexavalent (Cr^{6+}) chem treat provides improved protection over RoHS compliant trivalent (Cr^{3+}) chem treat products. The following criteria apply to dispositioning of customer claims for white rust on coated product:
- 19.2.1 Claims submitted for chemically treated and oiled GI/GA material that has been warehoused at the customer's facility or intermediary processor for more than sixty (60) days shall be declined. It is the customer's responsibility to store coils packaged in a dry, temperature controlled indoor facility. It is also the customer's responsibility to ensure the as-received packaging remains intact during the pre-fabrication storage life cycle. Material in inventory with less storage time than this does not constitute automatic acceptance, and will be critically evaluated on a case by case basis.
- 19.2.2 Claims will not be accepted on any material that was ordered and produced as 'no chem-treat / dry' or simply as 'dry'.
- 19.3 *Hardness & Mechanical Properties:* All mechanical properties are manufactured to ASTM non-mandatory recommendations in ASTM A653 for CS/B, FS/B, DDS, and EDDS.
- 19.3.1 Customer specific requirements for CS/B, FS/B, DDS, and EDDS must be negotiated in advance and included as part of the purchase agreement.
- 19.3.2 Graded material (i.e., SS Grade 40, 50, 55, 80) and customer specific mechanical property requirements will be guaranteed and must be clearly stated on the customer purchase order. Mechanical property results will be reported to the customer in the form of a metallurgical certification for these grades.
- 19.4 *Spangle & Surface Appearance:* Free zinc spangle can and will vary in size and distribution across the surface in the hot dip galvanizing process. Slight variation is considered typical. Gross variation in spangle will be considered as a valid claim upon investigation and with regard to the ordered spangle and fit for use considerations.
- 19.4.1 The supplier's base galvanized product is a minimum spangle coating. The customer understands that orders entered as 'spangle free' are not produced with any change to the galvanizing process parameters. The supplier does not produce or guarantee a product that is truly free of some visible zinc crystals.
- 19.4.2 Specific surface appearance and surface roughness requirements on Extra Smooth product should be viewed by customer and supplier in advance of an order.

19.5 *Aging & Fluting:* Coated products other than IF (EDDS) may be susceptible to fluting or stretcher strains. A small amount of cold work (temper rolling) will minimize or prevent this effect. If a product free of fluting or stretcher strains is required based upon end use, the customer must specify this on the purchase order, along with specific end use information.

19.5.1 Coils that have sat in inventory at the customer's facility for more than forty-five (45) days are at risk of carbon aging (yield point elongation recovery) and thus may experience fluting and stretcher strains during subsequent fabrication. Therefore, fluting and strain claims will be declined under these circumstances.

REVISION HISTORY

Revision	Date	Description	Responsible
1.0	9-03-2010	New Document	Ken Crain
2.0	6-11-2012	Document Reformat and Review	Dave Powder
3.0	4-28-2016	Document Reformat and Review	Frank Fonner



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