STEEL PANEL TECHNICAL INFORMATION

THANK YOU for choosing Midwest Manufacturing as your post frame building material supplier!

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PRO-RIB®

PREMIUM PRO-RIB®

PREMIUM PRO-SNAP®

MIDWEST MANUFACTURING

MM STEEL

STEEL PANEL
PROPERTIES AND LOADING CHART

PRO-RIB® PREMIUM PRO-RIB®

Panel Specifications				Top in Compression			Bottom in Compression		
Panel	Thickness (in.)	Weight (PSF)	Fy (KSI)	Ix (in4)	Sx (in3)	Ma (K-in)	Ix (in4)	Sx (in3)	Ma (K-in)
Pro-Rib	0.0142	0.7	82	0.009	0.013	0.67	0.005	0.012	0.568
Premium Pro-Rib	0.0157	0.77	82	0.01	0.016	0.786	0.006	0.014	0.656

Steel Load Table				Allowable Loads (PSF)					
Panel Specifications				Wind Load (girt spacing)			Live Load (purlin spacing)		
Panel	Thickness (in.)	Weight (PSF)	Fy (KSI)	2' (ft)	3' (ft)	4' (ft)	2' (ft)	3' (ft)	4 (ft)
Pro-Rib	0.0142	0.7	82	158	70	36	118	53	27
Premium Pro-Rib	0.0157	0.77	82	182	81	42	137	61	32

Wind Rating (UL580)

Impact Resistance - Hail - (UL2218)
http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=TGAM.R20721&ccn-shorttitle=Roof-covering+Materials,+Impact+Resistance&objid=1075553853&cfgid=1073741824&version=versionless&parent_

Fire Resistance (UL790)
https://standardscatalog.ul.com/standards/en/standard_790_8

Specifications for Galvanized Structural Steel (ASTM - A653)
https://www.astm.org/Standards/A653.htm

Coil Coating “Paint” Process for Exterior Exposed Building Products (ASTM - A6755)
http://www.astm.org/Standards/A755.htm

RUST FILINGS ON COATED AND UNCOATED STEEL

RUST FILINGS

The appearance of the rust “specks” on the surface of any coated or uncoated sheet are usually reported as premature sheet rusting within one year of installation. The particles present are typically the size of fine to coarse grains of sand; they will most likely be concentrated around doors, windows, vents, gables, fasteners, and penetrations where cutting has taken place. In some cases, they may appear very uniformly around large areas. The concentration of the rust specks may vary from a few isolated chips to several thousand per square foot.

Generally, this type of surface “contamination”, which is uncommon, originates during installation. Metal filings are produced when power tools are used to cut, grind, or drill the metal. The metal chips produced are hot and magnetically “charged” and will adhere to the coating surface. In time, these bare filings begin to rust. It is also possible for metal chips generated by a source not related to the building’s construction (such as airborne particles originating several miles away) to deposit upon the sheets. Nothing in the manufacturing process generates metal filings, so these filings had to occur post production.

Rust files can usually be removed easily, especially if they are cleaned soon after panel installation, as they are only adhered to the surface of the coating. A very effective method of removal is to clean the affected areas with Soft Scrub (common household cleaner) and a wet sponge; scrub using light pressure and thoroughly rinse the metal panel to remove all loose rust files and Soft Scrub residue. This method will remove the majority of the rust files and allow the paint to retain much of its origian shine. In many instances, a slight brown stain may remain, especially on lighter paint colors.

Removal of rust filings is not always an easy task. The red rust around the chip can be removed easily, but close examination may reveal that the small, dark cores of the metal chips were not removed. Unless the metal chip is completely removed, rust will reappear around the chip within a short period of time. For demostration purposes, it is likely that 5 to 10 minutes would be spent thoroughly cleaning a 5" area. The complete removal of the red rust (and metal chips) with the paint surface appearing new, clean, and flawless, even under magnification, is proof that the rust did not originate from the base metal of the sheet, but from an external source. Once the area has been completely cleaned, the rust will not reappear unless the sourse of contamination is still present.

Rust files on uncoated steel are a cosmetic concern and can be removed as described above, or left untreated, as they will not normally affect the service life of the panels. If left unattended, the rust filings will eventually weather away, but the process may require 5 or more years. To minimize the visual impact of existing rust filings, it may prove beneficial to remove all loose particles from the roof by power washing or similar procedures. It is important to ensure that cleaning procedures be such that the paint surface not be damaged when removing loose metal chips from the panel surface. A very gentle power wash/ rinse is suggested, which will not remove or damage the paint finish. On uncoated steel, these metal files will accelerate the sacrificial action of the panel’s metallic coating and will reduce the life expectancy of the panel. The filings must be removed from unpainted material.

The best method of minimizing the problems of rust filings is to cut metal panels with tin snips or a hand schear whenever possible. When power cutting is necessary, cut the panels with the finished side down. Power cutting should be done well away and down wind of the skidded panels and the building to reduce the potential of hot filings embedding themselves to the paint or coated surface. Metal panels cut or drilled with power equipment should be brushed lightly with a cloth or soft bristled brush immediately after cutting to remove any metal filings.

Cleaning Methods:

1. Use a wet rag to wipe over the panel surface.

2. Soft Scrub on a wet sponge. (Soft Scrub is a common household cleaner made by Clorox.)

For more information on this topic, visit www.ussteel.com Construction Market Bulletins - Staining of Building Panel from Steel Debris.

POST FRAME BUILDING SPECIFICATIONS

1.0 MATERIALS - Posts/Columns

1.2 MATERIALS - Gradeboard

1.3 MATERIALS - Wall Girts

1.4 MATERIALS - Post Headers

1.5 MATERIALS - Wall Sheathing

1.6 MATERIALS - Wall Insulation

1.7 MATERIALS - Primary Roof Framing

1.8 MATERIALS - Roof Purlins

1.9 MATERIALS - Roof Sheathing

1.10 MATERIALS - Attic Insulation

1.11 MATERIALS - Trim

1.0 MATERIALS - Posts/Columns

A. Wall posts are solid sawn, or nail-laminated structural wood products identified in the 2005 edition of NDS.

B. Nail-laminated columns 20' in length or less shalll be non-spliced.

C. Lumber grade shall be 2400f MSR or as specified by the designer of record.

D Portions of wood posts below grade and less than 8" above grade must be protected with pressure preservative chemical treatments to retention levels for use category UC4B or better per AwPA-U1.

E. All in place structural performance required connection hardware in the portion of the post below grad and 8" or less above grade shall be hot dipped galvanized per ASTM 153 or as per designer of record.

1.2 MATERIALS - Gradeboard

A. Gradeboard shall be solid sawn products identified in the 2005 edition of NDS of composite lumber (2x8 Fusion Grade plank)

B. Wood gradeboard must be pressure preservative treated with preservative chemical treatements and to retention levels per AWPA-UC4A or better.

C. All connection hardware used to attach the gradeboard shall be hot dipped galvanized per ASTM153 or as specified by designer of record.

1.3 MATERIALS - Wall Girts

A. Wall girts are solid sawn structural wood products identified in the 2005 edition of NDS.

B. Wall girts shall satisfy the wind load requirements as specified by the designer of record.

C. All wall girts less than 8" above grade must be pressure preservative treated with preservative chemical treatements and to retention levels for use category UC4B or better per AWPA-U1.

D. Wall girts are placed directly on the outside face of wall columns.

E. Wall girts are attached to the posts with fastener schedules as specified by the designer of record.

F. All in place structural performance required connection hardware in girts 8" or less above grade shall be hot dipped galvanized per ASTM 153 or as per designer of record.

G. All in place structural performance required connection hardware in the portion of copper-based pressure-treated girts within 8" of grade shall be hot dipped galvanized per ASTM 153 or stainless steel type 304 as designated by the American Institute of Iron and Steel (AISI) or as specified by the designer of record.

1.4 MATERIALS - Post Headers

A. Post headers are solid sawn or glued-laminated wood products identified in the 2005 edition of NDS.

B. Post headers are attached to the post with connector hardware or as specified by the designer of record.

1.5 MATERIALS - Wall Sheathing

A. Wall sheathing shall satisfy the wind load requirements as specified by the designer of record. Wall sheathing consists of Premium Pro-Rib steel panels attached to outside edge of wall girts in accordance with manufacturer's specifications or as shown on design drawing.

B. Premium Pro-Rib steel panel substrate shall be:

- Nominal thickness of .0180"
- G-100 galvanized coating plus zinc phosphate per ASTM 653
- Meets UL2218 Class 4 hail resistance
- Meets UL790 Class A fire resistance
- Meets UL580 Class 90 wind uplift
- Meets ASTM A 755 requirements

C. Exterior surface consists of Premium Pro-Rib pre-painted metal panel Ceram-A-Star 1050 finish with color from manufacturer's 25 standard colors.

D. Fasteners used to through-fasten painted corrugated steel panels shall match the color of adjacent cladding.

E. Suppliers of wall sheathing products for post-frame building systems are listed on the NFBA website: www.nfba.org

1.6 MATERIALS - Wall Insulation

A. Wall insulation shal be ASTM C655 conforming roll fiber glass type, shall have a material R- value of 19 hr-ft2-F/Btu or as specified by the designer of record.

1.7 MATERIALS - Primary Roof Framing

A. All roof framing shall satisfy the load requirements, except dead load for purlins - only the contributions from the purlins, sheathing, and other roof coverings.

B. The primary roof framing shall consist of metal plate connectd wood trusses designed and fabricated in accordance with the 2002 edition of TPI1.

1.8 MATERIALS - Roof Purlins

A. Roof purlins shall satisfy the load requirements, except dead load for purlins - only includes contributions from the purlins, sheathing, and other roof coverings.

B. Roof purlins shall be solid sawn structural wood products identified in the 2005 edition of NDS or as specified by the designer of record.

C. Roof purlins shall be placed directly on the top of trusses with strong axis oriented per shop drawings.

D. Roof purlins shall be attached to the truss with fastener types and schedules per the designer of record.

1.9 MATERIALS - Roof Sheathing

A. All roof sheathing shall satisfy all the necessary load requirements except dead load - only includes contributions from the sheathing and other sheathing coverings.

B. Roof sheathing consists of Premium Pro-Rib steel panels attached to the top edge of roof purlins in accordance with manufacturer's specifications or as shown on design drawings.

C. Premium Pro-Rib steel panel substrate shall be:

- Nominal thickness of .0180"
- G-100 galvanized coating plus zinc phosphate per ASTM 653
- Meets UL2218 Class 4 hail resistance
- Meets UL790 Class A fire resistance
- Meets UL580 Class 90 wind uplift
- Meets ASTM A 755 requirements

D. Exterior surface consists of Premium Pro-Rib pre-painted Ceram-A-Star 1050 finish with color from manufacturer's 25 standard colors

E. Fasteners used to through-fasten painted corrugated steel panels shall match the color of adjacent cladding.

F. Suppliers of roof sheathing products for post-frame building systems are listed on the NFBA website: www.nfba.org

1.10 MATERIALS - Attic Insulation

A. Attic insulation shall be ASTM C655 conforming fiber glass type, unfaced with UL flame spread classification of 25 or less where exposed and shall have a material R-value of 38hr-ft@-F/Btu per designer of record.

1.11 MATERIALS - Trim

A. All trim materials include flashings, internal and external corners, closure pieces, and fascia. All trim shall be compatible with the wall/roofing sheathing and sheathing finish materials per product supplier.

B. Suppliers of trim products for post-frame building systems are listed on the NFBA website: www.nfba.org

Sustainable Building Solutions

COOL CHEMISTRY coatings for energy-efficient building applications

AkzoNobel
Tomorrow's Answers Today

We manufacture a complete line of coil and extrusion coatings that comply with Energy Star guidelines and can help buildings qualify for points in LEED, which help make your projects more energy efficient and sustainable.

Coil Coatings

Our industry leading silicone-modified polyester, CERAM-A-STAR® 1050, along with our 70% PVDF product TRINAR®, are available in our COOL CHEMISTRY® Series which contain ceramic infrared reflective pigments. These special pigments are designed to reflect infrared energy while still absorbing visible light energy, thus appearing as the same color yet staying much cooler. When COOL CHEMISTRY Series paints are used on metal roofing, the result is a sustainable building material that can lower air conditioning costs, reduce peak energy demand, and help to mitigate urban heat island effects.

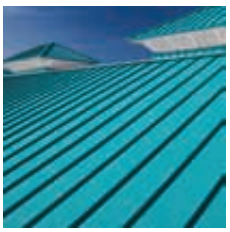
Extrusion Coatings

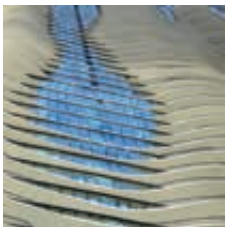
We also have a full line of extrusion coatings that are available as COOL CHEMISTRY colors, and also contain infrared reflective pigments. This pigmentation increases solar reflectivity and helps reduce energy costs associated with cooling, especially when combined with cool metal roofing. Our TRINAR *ULTRA* coatings offer other eco-friendly characteristics, such as a lower volume of VOC's, and lower amounts of hazardous air pollutants. TRINAR coatings also are ideally suited for application on louvers and other sun screens, which can be used to create shaded areas either inside or outside a building.

Increased efficiency, reliable performance

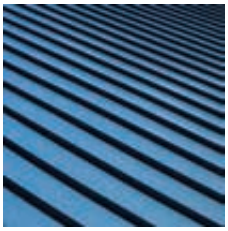
All of our products that utilize infrared reflective pigments in our COOL CHEMISTRY Series of coil and extrusion coatings have the same exceptional performance as the standard versions. For example, COOL CHEMISTRY versions of our TRINAR spray and coil coatings will meet or exceed the superior performance AAMA 2605 specification.

For years AkzoNobel has served its customers worldwide by creating the right chemistry with products such as TRINAR and our CERAM-A-STAR product lines. With our COOL CHEMISTRY Series of coatings, we continue to offer the unparalleled durability of TRINAR and CERAM-A-STAR in formulations which reduce energy consumption in buildings, thus lowering costs while protecting natural resources and help reduce pollution.






Cool Roof Rating Programs: Energy Star, LEED and CRRC

List of web sites for more information

Energy Star
www.energystar.gov
LEED / U.S. Green Building Council
www.usgbc.org
Cool Metal Roofing Coalition
www.coolmetalroofing.org
Metal Roofing Alliance
www.metalroofing.com
Metal Construction Association
www.metalconstruction.org
California Energy Commission Consumer Energy Center
www.consumerenergycenter.org
Cool Roof Rating Council
www.coolroofs.org
Metal Building Manufacturers Association
www.mbma.com
National Coil Coating Association
www.coilcoating.org
Lawrence Berkeley National Lab
http://eetd.lbl.gov/HeatIsland/CoolRoofs
Oak Ridge National Lab
www.ornl.gov/roofs+walls/index.html
Florida Solar Energy Center
www.fsec.ucf.edu

Introduction to Energy Star

Introduced in 1992, Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy, which is designed to identify and promote energy efficient products. The first products that were Energy Star labeled were computers and monitors, but since then the program has been expanded to now include a wide range of products from appliances to building products.

Through 2011, nearly 20,000 organizations have partnered with Energy Star to encourage energy efficiency, and realize significant financial and environmental benefits. Energy Star provides the technical information and tools that organizations and consumers need to choose energy-efficient solutions and best management practices. It is also a well recognized brand, with more than 80% of the American public recognizing the Energy Star label.

Energy Star and Cool Metal Roofing

Energy Star has a labeling program for reflective roofing products, which includes cool metal roofs. This allows manufacturers to use the Energy Star label on reflective roof products that meet the U.S. EPA's specifications for solar reflectance and reliability.

A roofing manufacturer must first apply to become an Energy Star Partner, and then once they are approved they can submit products for certification. Energy Star Partners wishing to list new products are required to have an EPA-approved Accredited Lab perform the appropriate testing, which is submitted to a Certification Body (CB) for review. The CB is responsible for verifying the data and will certify or reject the product(s) for the EPA. Once a product is certified, it is listed on the Energy Star web site.

Energy Star specifications

ROOF SLOPE	INITIAL SOLAR REFLECTANCE	3RD YEAR SOLAR REFLECTANCE
Low Slope (≤ 2:12 inches)	≥ 0.65	≥ 0.50
Steep Slope (> 2:12 inches)	≥ 0.25	≥ 0.15

NOTE: THERMAL EMITTANCE VALUES MUST BE REPORTED AS REQUIRED BY ENERGY STAR, BUT THEY ARE NOT A CONDITION OF CERTIFICATION.

Introduction to LEED

The LEED® Green Building Rating System™ was developed by the U.S. Green Building Council (USGBC) to identify and certify buildings that are designed, constructed and operated sustainably. The LEED Rating System is intended to provide a framework for rating new and existing commercial, institutional and residential buildings in regards to energy efficiency. LEED is based on a 100 point scale, where points are awarded for certain aspects of a building's design and construction. Points are awarded in credits within five different categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality.

The current version of this program is LEED 2009, which will remain active until June 2015. The new version is LEED v4, and will be introduced in 2013 as an alternative to LEED 2009, with both versions running concurrently for a while. Cool metal roofing can help a building project qualify for points in LEED, outlined by the requirements spelled out on the following pages.

Introduction to the Cool Roof Rating Council

The Cool Roof Rating Council was created in 1998 to develop accurate and credible methods for evaluating and labeling the solar reflectance and thermal emittance of roofing products, and to disseminate this information to the industry.

At the core of the CRRC is its Product Rating Program, in which roofing manufacturers can label various roof products with values of radiative properties evaluated under a strict program administered by the CRRC. Code bodies, architects, building owners and specifiers can rely on the rating information provided in the CRRC Rated Products Directory

The CRRC does not set a minimum definition for "cool", the CRRC simply lists the measured radiative property values on their Directory. This data serves as an impartial source of information and is referenced by other programs, such as LEED.

Prepainted metal roofing compliance: LEED 2009

Sustainable Sites (SS Credit 7.2)

SS Credit 7.2: Heat Island Effect - Roof (1 Point)

Intent:

Reduce heat islands (ambient thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitats.

Requirements:

OPTION 1

Use roofing materials having a Solar Reflectance Index[1] (SRI) equal to or greater than the values in the table below for a minimum of 75% of the roof surface.

Roofing materials having a lower SRI value than those listed below may be used if the weighted rooftop SRI average meets the following criteria:
(Area SRI roof/Total roof area) x (SRI of installed roof/Required SRI) ≥75%

ROOF TYPE	SLOPE	SRI
Low-Sloped Roof	≤ 2:12	78
Steep-Sloped Roof	> 2:12	29

OPTION 2

Install a vegetated roof for at least 50% of the roof area.

OPTION 3

Install high albedo and vegetated roof surfaces that, in combination, meet the following criteria:
(Area of SRI Roof / 0.75) + (Area of vegetated roof / 0.5) ≥Total Roof Area

ROOF TYPE	SLOPE	SRI
Low-Sloped Roof	≤ 2:12	78
Steep-Sloped Roof	> 2:12	29

[1]The Solar Reflectance Index (SRI) is a measure of the constructed surface's ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. To calculate the SRI for a given material, obtain the reflectance value and emittance value for the material. SRI is calculated according to ASTM E 1980. Reflectance is measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371.

Potential Technologies & Strategies

Consider installing high-albedo and vegetated roofs to reduce heat absorption. SRI is calculated according to ASTM E 1980. Reflectance is measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371. Default values are available in the LEED 2009 Reference Guides. Product information is available from the Cool Roof Rating Council web site, at www.coolroofs.org and the ENERGY STAR web site, at www.energystar.gov.

To comply with Credit 7.2 in LEED 2009, the following steps must be taken:

- Building owner and design team registers the building project in advance with the USGBC, which provides LEED document templates for subsequent submission of the project details to USGBC for certification.
  - Information on materials, building practice, systems used, etc. included on the letter templates.
  - Specific information with respect to LEED SS-credit 7.2 includes roof surface SRI values.
- Metal roof manufacturer must verify to owner/architect/specifier that roof material and design complies with criteria in Credit 7.2.
- Paint supplier provides to metal roofing manufacturer a certified laboratory test report of measured TSR, TE and calculated SRI on the specified type of paint system and color requested.
- Building owner/architect/spec writer must take into account the percentage of the roof surface area to be covered by metal roofing. Note that Credit 7.2 calls for at least 75% of the area to be covered with a cool roof. If more than 75% of the area is covered (excluding parapets, sky lights, and equipment) a lower effective SRI is permitted by using the calculator in Credit 7.2.

COOL CHEMISTRY Product Information

Our COOL CHEMISTRY Series of coatings offers the unparalleled durability of TRINAR and CERAM-A-STAR in formulations which reduce energy consumption in buildings, thus lowering energy costs while protecting natural resources and reducing pollution.

End use description

AkzoNobel's COOL CHEMISTRY Series of coil coatings incorporate solar reflecting pigmentation in TRINAR (70% PVDF) and the CERAM-A-STAR (siliconized modified polyesters) family. Both coating systems are designed to contribute color and help protect metal coils that are later fabricated into construction panel products for metal roofing and siding. Years of continuous research and actual outdoor testing ensure the performance of COOL CHEMISTRY coatings, which are available in a wide array of colors that blend well with collateral construction materials.

Application

COOL CHEMISTRY Series coatings are intended to be factory applied to metal substrates according to AkzoNobel Product Data Sheets, over primer, by the coil coating method only. This process efficiently and economically applies primer and COOL CHEMISTRY Series coatings according to exact film thickness specifications across the entire panel width. In this process, coatings are applied to specified metal substrates that have been thoroughly cleaned and chemically pretreated in accordance with manufacturer's instructions to optimize adhesion, forming and weathering characteristics.

COOL CHEMISTRY Series coatings and primer must be baked and cured in factory ovens at peak metal temperatures ranging from 400°-480°F. Color, gloss, hardness, cure, flexibility and adhesion are only a few of the performance characteristics monitored in the quality control process. The coil coating process is highly efficient with nearly 100% transfer efficiency to the metal coils. This process collects and destroys almost all volatile organic content (VOC's) usually associated to any painting process.

Specified parameters

Refer to AkzoNobel specific product specification pages available from your metal supplier or AkzoNobel. Complete test reports are available upon request.

Test Specifications

Test methods established by ASTM (American Society for Testing and Materials).
For Energy Star® labeled product:
ASTM E903 or C1549 Total Solar Reflectance.
For CRRC® labeled product:
ASTM E903, E1918 or C1549 for Total Solar Reflectance, and ASTM C1371 for Thermal Emittance.

Product composition

COOL CHEMISTRY Series coatings are made from the highest quality ceramic and select inorganic pigments in a wide range of colors. ISO 9001 certified AkzoNobel manufacturing methods uniformly distribute pigments into a proprietary resins formulation. This combination has been proven under years of harsh 45° S. South Florida exposure, to resist changes in color and general appearance, while preserving film integrity and coating properties.

Maintenance suggestions

Proper maintenance is vital for any coating to achieve maximum installed life performance. Contact AkzoNobel and ask for a copy of our "Care and Maintenance Guide" for recommended methods and procedures. Color matched air-dry coatings for post construction touch-up and scratch repair, as mentioned in the "Care and Maintenance Guide," are available in COOL CHEMISTRY Series coatings through your panel fabricator.

Costing and warranty

Contact your panel system fabricator for accurate installed cost estimates. Coating system performance warranties are available. Contact AkzoNobel Coatings Marketing and Sales department or your panel system supplier.

AkzoNobel
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www.akzonobel.com/ccna

AkzoNobel is the largest global paint and coatings company and a major producer of specialty chemicals. We supply industries and consumers worldwide with innovative products and are passionate about developing sustainable answers for our customers. Our portfolio includes well known brands such as Dulux, Sikkens, International and Eka. Headquartered in Amsterdam, the Netherlands, we are consistently ranked as one of the leaders in the area of sustainability. With operations in more than 80 countries, our 55,000 people around the world are committed to excellence and delivering Tomorrow's Answers Today™.

Revision Date: November 2012

For more information, please contact:

Akzo Nobel Coatings Inc.
1313 Windsor Ave.
Columbus, OH 43211

614.294.3361

ENERGY STAR PARTNER
National Coil Coating Association
MCA METAL CONSTRUCTION ASSOCIATION
ISO 9001:2008 CERTIFIED COMPANY
CRRC COOL ROOF RATING COUNCIL
MBMA

01420_270209

The qualities of

CERAM-A-STAR® 1050

The industry's best silicone-modified polyester coil coating system

AkzoNobel

Product information and specifications for CERAM-A-STAR 1050 high-performance silicone-modified polyester finishes

Product Information

CERAM-A-STAR 1050 is a silicone-modified polyester coil coating system designed exclusively for the metal construction industry. It's the industry's best and strongest SMP coil coating system available, offering superior color stability, chalk resistance, fade resistance and gloss retention. It's proprietary resin formulation provides the backbone for this revolutionary SMP system. It's combined with ceramic and inorganic pigments and other enhancements to our award-winning CERAM-A-STAR 950 system to create the most durable SMP finish available.

This two-coat system, using our High-Performance Primer, provides exceptional durability and offers superior resistance to moisture and UV exposure, with excellent flexibility and abrasion resistance. The unique and highly durable topcoat provides the best color stability and gloss retention of any SMP product.

In fact, the color stability of CERAM-A-STAR 1050 rivals that of 70% PVDF coatings, while offering excellent resistance to dirt pickup and atmospheric stain. Its scratch and abrasion resistance are big bonuses during transit, handling and installation as well – particularly in hot weather. These qualities in particular make CERAM-A-STAR 1050 an excellent alternative to PVDF coatings in certain applications where hot hardness and handling issues are of concern.

CERAM-A-STAR 1050 represents a level of performance surpassing that of all previous silicone-modified polyester finishes. It closes the performance gap with PVDF as it approaches the long-term results of the higher priced coating — while combining the best technological balance of flexibility and toughness.

Field Performance

CERAM-A-STAR 1050 is one component of a total paint system. When applied in accordance to specifications the following field performance can be expected.

	Walls	Roofs
Film Integrity	40 years	40 years
Chalk	No more than #8 for 30 years	No more than #6 for 30 years
Fade	No more than 5 ΔE Hunter units for 30 years	No more than 7 ΔE Hunter units for 30 years

General System Information

CERAM-A-STAR 1050 is approved for use on the following substrates: Hot-Dipped Galvanized (HDG), Galvalume® and Aluminum.

CERAM-A-STAR 1050 is a factory-applied finish that is applied through roll coating to properly cleaned and pre-treated first-quality substrates, and then oven-baked to cure. It is a two-coat system, composed of a topcoat over AkzoNobel's High-Performance Primer.

CERAM-A-STAR® 1050 COOL CHEMISTRY® Series

CERAM-A-STAR 1050 is also available in our COOL CHEMISTRY Series, which contains ceramic infrared reflective pigments. These special pigments are designed to reflect infrared energy while still absorbing visible light energy, thus appearing as the same color yet staying much cooler. When COOL CHEMISTRY coatings are used on metal roofing, the result is a sustainable building material that can lower air conditioning costs, reduce peak energy demand, and help to mitigate urban heat island effects. All of our high-performance coatings for building products are also available in COOL CHEMISTRY versions.

1.800.294.3361

Mailing Address:
PO Box 489
Columbus, OH 43216

Physical Address:
1313 Windsor Ave.
Columbus, OH 43211

Application Characteristics

Film Thickness	Topside finish: Primer (dry) = 0.20 – 0.30 mils; Topcoat (dry) = 0. 70 – 0.80 mils; Reverse side finish: Primer (dry) = 0. 15 – 0.25 mils; Pigmented backer (dry) = 0. 30 – 0.40 mils. Total DFT for system = 0. 90 – 1.15 mils. All measurements per ASTM D 5796.
Topside Color	Controlled to the Master Standard by an approved Color Difference Meter or Spectrophotometer, and by visual match under daylight and horizon light of a Macbeth Daylight Booth per ASTM D 1729.

Physical Properties

Specular Gloss	Determined per ASTM D 523 at a glossmeter angle of 60°. CERAM-A-STAR 1050 systems are typically 35% ± 5%, but are available in both higher and lower gloss ranges.
Pencil Hardness	Minimum pencil hardness, per ASTM D 3363, is "F".
Solvent Resistance	Passes minimum of 100 double rubs of a MEK soaked cloth, per ASTM D 5402.
Cross-Hatch Adhesion	No paint removal with Scotch #610 cellophane tape after cross-scoring with eleven horizontal and eleven vertical lines 1 mm apart, per ASTM D 3359.
Impact Resistance	No visible paint removal with Scotch #610 cellophane tape after direct and reverse impact of 80-inch pounds, using 5/8"
	steel ball on a Gardner Impact Tester, per ASTM D 2794.
T-Bend Adhesion	Per ASTM D 4145, no loss of adhesion when taped with Scotch #610 cellophane tape when subjected to a 2T-Bend.

Testing Data

Humidity Resistance	No blistering, cracking, peeling, loss of gloss or softening of the finish after 1000 hours of exposure to 100% humidity at 100°F ± 5°F, per ASTM D 2247.
Cleveland Condensing	No blistering, rusting or loss of adhesion of the finish after 1000 hours of exposure at 120°F, per ASTM D 4585.
Water Immersion Resistance	Samples immersed in distilled water at 100°F per ASTM D 870 will exhibit no loss of gloss, blistering, cracking, color change or softening of finish after 500 hours.
Salt Spray Resistance	Samples diagonally scored and subjected to 5% neutral salt spray for 1000 hours, per ASTM B 117, then taped 1 hour after removal from the test cabinet with Scotch #610 cellophane tape, exhibit no blistering, no loss of adhesion and scribe creep no greater than 1/8".
Chemical Resistance	No significant color change after 24 hours exposure to 10% solutions of hydrochloric and sulfuric acids, per ASTM D 1308, Procedure 7.2 (spot test).
Kesternich Test	No significant color change after 10 cycles in a SO_2 chamber, per ASTM G 87.
Accelerated Weathering	5 Hunter ΔE maximum color change, and at least #8 chalk rating after 2000 hours exposure, per ASTM G 151 and G 154 using UVA-340 bulbs.
Exterior Weathering	Florida exposure (45º South), 5 Hunter ΔE maximum color change, per ASTM D 2244, and at least #8 chalk rating, per ASTM D 4214, Method A, after 10 years real-time exposure.
Abrasion Resistance	Per ASTM D 968, Method A, CERAM-A-STAR 1050 passes 35 +/- 5 liters/mil of falling sand.
Flame Spread Rating	CERAM-A-STAR 1050 displays a flame spread classification of A (Class 1) when tested in accordance with ASTM E 84.

AkzoNobel

www.akzonobel.com/ccna

AkzoNobel is a leading global paints and coatings company and a major producer of specialty chemicals. We supply industries and consumers worldwide with innovative products and are passionate about developing sustainable answers for our customers. Our portfolio includes well-known brands such as Dulux, Sikkens, International and Eka. Headquartered in Amsterdam, the Netherlands, we are consistently ranked as one of the leaders in the area of sustainability. With operations in more than 80 countries, our 50,000 people around the world are committed to delivering leading products and technologies to meet the growing demands of our fast-changing world.

Revision Date: June 2014

ENERGY STAR PARTNER

National Coil Coating Association

ISO 9001:2003 CERTIFIED COMPANY

00186_040908

The qualities of

CERAM-A-STAR® 950

A high performance silicone-modified polyester coil coating system

AkzoNobel
Tomorrow's Answers Today

Product Information and Performance Specifications for CERAM-A-STAR® 950 Silicone Polyester Finishes

Product Information

AkzoNobel's CERAM-A-STAR® 950 represents a level of performance surpassing that of all previous silicone-protected finishes. CERAM-A-STAR® 950 colors are created from field proven combinations of proprietary resin technology and long lasting ceramic and select inorganic pigmentation. The result is a long-lasting finish that resists degradation from ultraviolet radiation in sunlight.

To assure the very best results from our highly-durable CERAM-A-STAR® 950 resin system, it is imperative to use the same high performance ceramic and select inorganic pigments that are found in more expensive PVDF finishes. This combination gives unbeatable performance when compared to previous technology systems.

The two-coat system, using our High-Performance primer, provides exceptional durability and offers superior resistance to moisture and UV exposure. CERAM-A-STAR® 950 also offers excellent resistance to dirt pickup and atmospheric stain. Its scratch and abrasion resistance are big bonuses during transit, handling and installation as well – particularly in hot weather.

Insisting on the field proven performance of CERAM-A-STAR® 950 today will pay off later in a building that will look better for a longer period of time.

Field Performance

CERAM-A-STAR® 950 is one component of a total paint system, when applied in accordance to specifications the following field performance can be expected.

	Walls	Roofs
Film Integrity	30 years	30 years
Chalk	No more than #8 for 25 years	No more than #6 for 25 years
Fade	No more than 5 Hunter units for 25 years	No more than 7 Hunter units for 25 years

General System Information

CERAM-A-STAR® 950 is approved for use on the following substrates: Hot-Dipped Galvanized (HDG), Galvalume®, Galfan and Aluminum.

CERAM-A-STAR® 950 is a factory applied finish that is applied through roll coating to properly cleaned and pre-treated first quality substrates, and then oven baked to cure. It is a two coat system, composed of a topcoat over AkzoNobel's High-Performance primer.

CERAM-A-STAR® 950 COOL CHEMISTRY® Series

CERAM-A-STAR® 950 is also available in our COOL CHEMISTRY® series which contain ceramic infrared reflective pigments. These special pigments are designed to reflect infrared energy while still absorbing visible light energy, thus appearing as the same color yet staying much cooler. When COOL CHEMISTRY® Series paints are used on metal roofing, the result is a sustainable building material that can lower air conditioning costs, reduce peak energy demand, and help to mitigate urban heat island effects. COOL CHEMISTRY® Series versions are available of our high performance coatings for building products.

1.800.294.3361

Mailing Address:
PO Box 489
Columbus, OH 43216

Physical Address:
1313 Windsor Ave.
Columbus, OH 43211

Application Characteristics

Film Thickness	Topside finish: Primer (dry) = 0.20 – 0.30 mils; Topcoat (dry) = 0. 70 – 0.80 mils; Reverse side finish: Primer (dry) = 0. 15 – 0.25 mils; Pigmented backer (dry) = 0. 30 – 0.40 mils. Total DFT for system = 0. 90 – 1.15 mils. All measurements per ASTM D 5796.
Topside Color	Controlled to the Master Standard by an approved Color Difference Meter or Spectrophotometer, and by visual match under daylight and horizon light of a Macbeth Daylight Booth per ASTM D 1729.

Physical Properties

Specular Gloss	Determined per ASTM D 523 at a glossmeter angle of 60°. CERAM-A-STAR® 950 systems are typically 35% ± 5%, but are available in both higher and lower gloss ranges.
Pencil Hardness	Minimum pencil hardness, per ASTM D 3363, is "F".
Solvent Resistance	Passes minimum of 100 double rubs of a MEK soaked cloth, per ASTM D 5402.
Cross-Hatch Adhesion	No paint removal with Scotch #610 cellophane tape after cross-scoring with eleven horizontal and eleven vertical lines 1 mm apart, per ASTM D 3359.
Impact Resistance	No visible paint removal with Scotch #610 cellophane tape after direct and reverse impact of 80-inch pounds, using 5/8" steel ball on a Gardner Impact Tester, per ASTM D 2794.
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Water Immersion Resistance	Samples immersed in distilled water at 100°F per ASTM D 870 will exhibit no loss of gloss, blistering, cracking, color change or softening of finish after 500 hours.
Salt Spray Resistance	Samples diagonally scored and subjected to 5% neutral salt spray for 1000 hours, per ASTM B 117, then taped 1 hour after removal from the test cabinet with Scotch #610 cellophane tape, exhibit no blistering, no loss of adhesion and scribe creep no greater than 1/8".
Chemical Resistance	No significant color change after 24 hours exposure to 10% solutions of hydrochloric and sulfuric acids, per ASTM D 1308, Procedure 7.2 (spot test).
Kesternich Test	No significant color change after 10 cycles in a SO_2 chamber, per ASTM G 87.
Accelerated Weathering	5 Hunter ΔE maximum color change, and at least #8 chalk rating after 1,500 hours exposure, per ASTM G 151 and G 154 using UVA-340 bulbs.
Exterior Weathering	Florida exposure (45º South), 5 Hunter ΔE maximum color change, per ASTM D 2244, and at least #8 chalk rating, per ASTM D 4214, Method A, after 5 years real-time exposure.
Abrasion Resistance	Per ASTM D 968, Method A, CERAM-A-STAR® 950 passes 30 +/- 5 liters/mil of falling sand.
Flame Spread Rating	CERAM-A-STAR® 950 displays a flame spread classification of A (Class 1) when tested in accordance with ASTM E 84.

AkzoNobel
Tomorrow's Answers Today

www.akzonobel.com/ccna

AkzoNobel is the largest global paints and coatings company and a major producer of specialty chemicals. We supply industries and consumers worldwide with innovative products and are passionate about developing sustainable answers for our customers. Headquartered in Amsterdam, the Netherlands, we are a Global Fortune 500 company and are consistently ranked as one of the leaders in the area of sustainability. With operations in more than 80 countries, our 55,000 people around the world are committed to excellence and delivering Tomorrow's Answers Today™.

Revision Date: June 2011

ENERGY STAR PARTNER
National Coil Coating Association
MCA METAL CONSTRUCTION ASSOCIATION
ISO 9001:2008 CERTIFIED COMPANY
CRRC COOL ROOF RATING COUNCIL
MBMA

00206_050908

Residential STEEL ROOFING

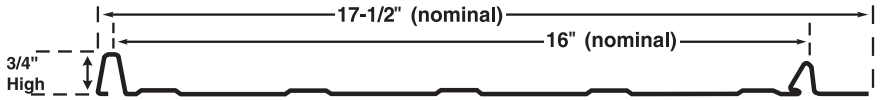
Limited Lifetime Warranty

PREMIUM PRO-RIB®

EXPOSED FASTENERS

PREMIUM PRO-SNAP®

HIDDEN FASTENERS



Film Integrity:

Premium Residential Steel Roofing has a Limited Lifetime Warranty for paint film integrity. It will not peel, flake or otherwise lose adhesion to an extent that is apparent on ordinary outdoor visual observation. Note: Slight crazing or cracking may occur on roll-formed edges or break bends at the time of forming, and is considered as standard such crazing or cracking shall not constitute a basis for complaint under this limited warranty. Distance from salt water environment must exceed 2000 meters for warranty to apply; and

Fade Rating:

For a period of 30 years, Premium Residential Steel Roofing panels will not change more than 7 Hunter units when measured per ASTM D 2244 on clean surfaces after removing dirt, other surface deposits and chalk per ASTM D 3964. Distance from salt water environment must exceed 2000 meters for warranty to apply; and

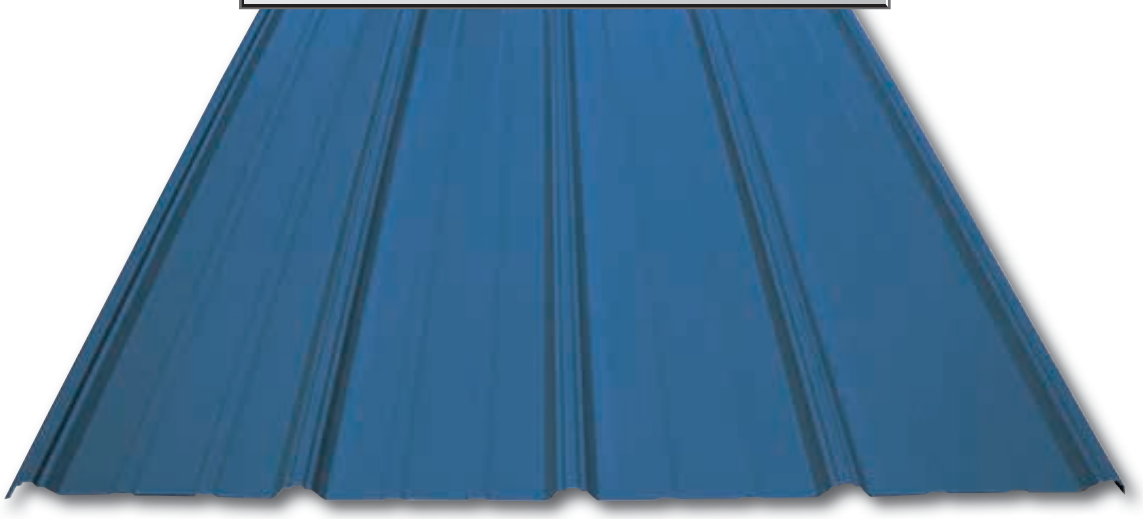
Chalk Rating:

For a period of 30 years, Premium Residential Steel Roofing will not chalk more than a number 6 rating when measured per ASTM D 4214, Method A. Distance from salt water environment must exceed 2000 meters for warranty to apply.

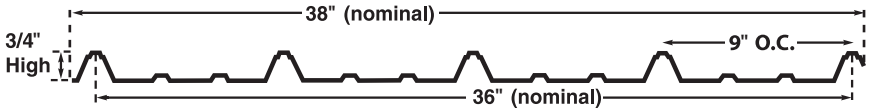
For specific guidelines refer to
AKZO NOBEL'S CERAM-A-STAR® 1050 LIMITED LIFETIME WARRANTY.

Residential
STEEL ROOFING
40 Year Limited Warranty

PRO-RIB®



EXPOSED FASTENERS



Film Integrity:

Residential Steel Roofing has a 40 Year Limited Warranty for paint film integrity. It will not peel, flake or otherwise lose adhesion to an extent that is apparent on ordinary outdoor visual observation. Note: Slight crazing or cracking may occur on roll-formed edges or break bends at the time of forming,and is considered as standard such crazing or cracking shall not constitute a basis for complaint under this limited warranty. Distance from salt water environment must exceed 2000 meters for warranty to apply; and

Fade Rating:

For a period of 25 years Residential Steel Roofing panels will not change more than 7 Hunter units when measured per ASTM D 2244 on clean surfaces after removing dirt, other surface deposits and chalk per ASTM D 3964. Distance from salt water environment must exceed 2000 meters for warranty to apply; and

Chalk Rating:

For a period of 25 years Residential Steel Roofing will not chalk more than a number 6 rating when measured per ASTM D 4214, Method A. Distance from salt water environment must exceed 2000 meters for warranty to apply.

For specific guidelines refer to *AKZO NOBEL'S CERAMIC SMP LIMITED WARRANTY.*

DURAMAX 15

DURA-PANEL™

DURAMAX 15

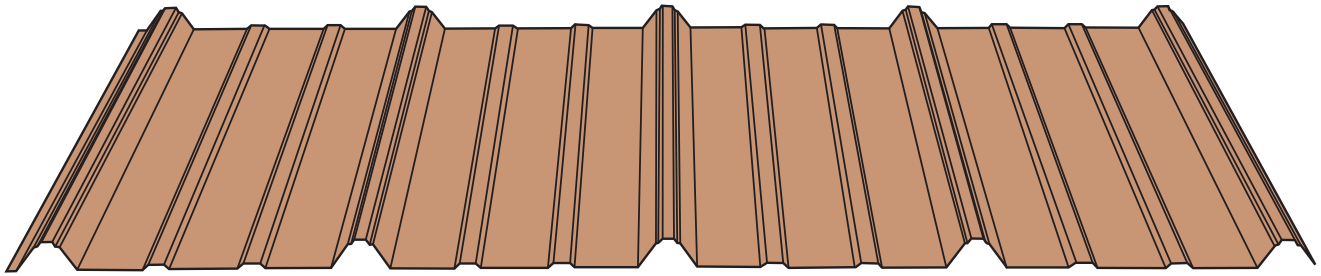
DURA-PANEL™ SYSTEM 15

Film Integrity: Paint film integrity is warranted for a period of 15 years. Dura-Panel™ will not peel, crack, check, or flake (not to be construed to include slight hairline cracking which occurs during fabrication) for a period of 15 years. Distance from salt water environment must exceed 2000 meters for warranty to apply.

Chalk Rating: Will not chalk more than a number 6 rating on vertical installations for a period of 10 years; and will not chalk more than a number 5 rating on non-vertical installations for a period of 5 years as determined by the procedure outlined in ASTM D-4214, Method A. Distance from salt water environment must exceed 2000 meters for warranty to apply.

Fade Rating: Will not fade more than 6 NBS (Hunter) Units on vertical installations for a period of 10 years; and will not fade more than 7 NBS (Hunter) Units on non-vertical installations for a period of 5 years as determined by ASTM D-2244 and ASTM D-3964. Distance from salt water environment must exceed 2000 meters for warranty to apply.

www.midwestmanufacturing.com March 2010



For specific guidelines refer to Akzo Nobel's BP 510 Limited Warranty.