

# VULCAN ALUMINUM LINE MARKER SIGNS

Vulcan's Aluminum Line Marker Signs are a leading product in our quality-driven product line. Our signs are manufactured using 5052 alloy that is produced by Vulcan Aluminum, which is located on our thirty acre campus. This integrated production process ensures quality control from start to finish. Read below to learn more about the manufacturing process.

## PRODUCT DATA



ALUMINUM CIRCLE SIGN ON GREEN U-CHANNEL POST

Aluminum Line Markers, as produced by Vulcan, are manufactured from aluminum alloy 5052-H38 produced in our on-site aluminum rolling mill. Due to its superior strength, 5052 alloy is currently specified in almost all states as the alloy used for fabricated metal road signs. Alloy 5052-H38 has 50% more tensile and shear strength over the more commonly used alloys 3003-H14 and 5005-H34, and is a fully hardened alloy offering more rigidity against bending. 5052-H38 also complies with the chemical and physical properties required in the Aluminum Association Specification. (See table)

The sign blank is first sheared from our coil stock. The holes are then punched and the corners rounded as required for each order. The next manufacturing step is a chemical conversion coating process. This process accomplishes two purposes. Aluminum, when rolled to the desired thickness, has a thin film of rolling oil in the pores of the surface. The chemical process first cleans the aluminum using a liquid etching type of alkaline cleaner followed by a deoxidizer to remove smut and residual oxides. Following the cleaning stages, an alodine 1200 chemical conversion is then utilized to produce a protective coating on the aluminum. This coating ensures a clean "primed" surface for screen printing and protects the aluminum from corrosion. This above process is commonly referred to as "treating of the sign blank."

Once the sign blank is treated, it is ready for the printing process. Reflectivity or non-reflectivity is determined and color matched component inks are used for printing to ensure maximum outdoor durability. A UV coating is then applied as the final stage of the printing process. After printing, the signs are inspected and packed with interleaving paper with approximately 20 to 30 signs per carton, depending on the size.



ALUMINUM RECTANGLE SIGN ON GREEN U-CHANNEL POST

Cartons are then placed on a skid and banded for safe shipment.

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## TECHNICAL SPECIFICATIONS

The table below illustrates the difference in the physical strengths of commonly used Aluminum Alloys for sign making. Vulcan manufactures 5052 aluminum, which is the alloy used to manufacture Vulcan Line Marker Signs.

ALLOY <input type="checkbox"/>	TENSILE STRENGTH (KSI)		ELONGATION <input type="checkbox"/>
	ULTIMATE <input type="checkbox"/>	YIELD <input type="checkbox"/>	
3003-H14	20.0	17.0	6
5005-H14	21.0	17.0	5
5052-H32	31.0	23.0	7
5052-H34	24.0	26.0	6
5052-H36	37.0	29.0	4
5052-H38	39.0	32.0	4

CHEMISTRY	HIGH LIMIT	LOW LIMIT
CHROME	.35%	.15%
COPPER	.1%	N/A
IRON	.4%	N/A
MAGNESIUM	2.8%	2.2%
MANGANESE	.1%	N/A
SILICON	.25%	N/A
ZINC	.1%	N/A

THICKNESS .051-.113

MINIMUM VALUES (KSI)

% MINIMUM IN 2 INCHES



MADE IN THE USA