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COVER LETTER

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Dear,
I/We wish to submit an original research article entitled "***Effect of Different Cleanness of the Pre-Coat Surface on Adhesion and Corrosion Performance of A36 Steel with Epoxy Coating***" for consideration by SINERGI.

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We promise not to withdraw this article after it has been processed by the Editorial Team. If there is a withdrawal, we are willing to pay a penalty of USD 150 (IDR 2000K) to the SINERGI Editorial Team.

In this paper, I/we report on / show that:

Field	:	Mechanical and Manufature Engineering
Topic	:	Coating and Corrosion
Brief Background	:	The ship's hull is its primary structural barrier against environmental and mechanical threats, requiring durability to endure operational stresses over time. ASTM A36 steel is widely used in hull construction due to its strength and formability, though it remains vulnerable to corrosion—a major contributor to maintenance costs and structural failure in maritime environments. Protective coatings, particularly organic types, are employed to mitigate corrosion, with their effectiveness highly dependent on surface preparation techniques such as blasting. While existing standards provide qualitative assessments of surface cleanliness, there is a lack of quantitative models correlating cleanliness levels with coating adhesion strength and corrosion resistance. This research addresses that gap by developing a cleanness model based on blasting effectiveness and its impact on spray-coated ASTM A36 steel performance.

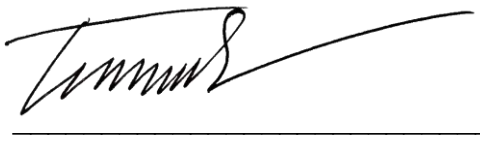
Research Problem	:	The cleanness of a blasted surface is known to influence the adhesion strength of coatings as well as the corrosion rate of the substrate. However, there is a gap in the literature regarding a systematic approach or model to measure and predict how varying levels of cleanliness directly impact these properties. In this study, therefore, proposes to undertake research aimed at developing a cleanness model based on the degree of cleanliness achieved through blasting, and its subsequent effect on the adhesion strength and corrosion rate of spray-coated ASTM A36 steel.
Overview of Method	:	This study investigates the effect of surface cleanliness levels on the adhesion strength and corrosion resistance of zinc-rich epoxy coatings applied to A36 carbon steel substrates. The A36 steel, with a composition of 0.26% C, 0.29% Si, 1.05% Mn, 0.04% P, and 0.07% S (balance Fe, wt.%), was prepared into test coupons measuring 20 cm × 10 cm × 0.5 cm. Prior to coating, the steel surfaces underwent abrasive blasting treatments according to four NACE surface cleanliness standards (NACE 1 to NACE 4). The blasted surfaces were then rinsed with 70 wt.% ethanol, and their cleanliness was verified visually against NACE reference standards. The epoxy coating used was a polyamide-cured formulation containing 5 wt.% zinc powder. It was prepared by mixing epoxy resin with a polyamide hardener in a 4:1 mass ratio. The coating was applied via an airless spray-type film applicator. Two layers were applied: the first cured for 24 hours at ambient temperature (25 °C), followed by a second coat. Coated samples were conditioned for seven days before testing. The coating thickness was measured in both wet and dry conditions using a PosiTector® 6000. Performance evaluation included: 1. **Corrosion resistance**, assessed through potentiodynamic polarization using a PalmSens electrochemical workstation. A standard three-electrode cell setup was employed (Ag/AgCl reference, Pt counter, and coated steel as the working electrode) in a 3.5 wt.% NaCl solution at room temperature, with a scan rate of 1 mV/s. 2. **Adhesion strength**, measured by a pull-off test using a PosiTest AT-M in accordance with standard

		test procedures. 3. **Optical observation**, to examine surface morphology and coating integrity.
Significant finding	:	The main research finding is the correlation of the level of cleanliness of the material with the effectiveness of epoxy coating on the pullout strength and corrosion resistance of A36 steel in an environment of 3.5 wt.% NaCl. It was found that if the priority was to obtain good corrosion resistance, the cleaning standard chosen was NACE 1, which is the highest level of cleanliness. However, if the desired priority is pullout strength, the optimal level of cleanliness is NACE 2. The cleanliness level of NACE 2 has a large pullout strength because at this level, even though the surface is blasted cleanly, there are still more valleys and hills on the sample surface than NACE1, thereby increasing mechanical bonding. However, in NACE 2, the corrosion resistance is still less than in NACE 1 because in NACE 1 the possibility of inclusions in the paint can be minimized compared to NACE 2.

We have no conflicts of interest to disclose.

Thank you for your consideration of this manuscript.

Sincerely,
Teguh Dwi Widodo



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AUTHORSHIP STATEMENT

I/We wish to submit an original research article entitled "***Effect of Different Cleanness of the Pre-Coat Surface on Adhesion and Corrosion Performance of A36 Steel with Epoxy Coating***" for consideration by SINERGI.

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in work to take public responsibility for the content, incl uding participation in the concept, design, analysis, writing, or revision of the manuscript.

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POTENTIAL REVIEWERS

Please send 3 (three) prospective reviewers (who are not yet registered in SINERGI) to speed up the review process who are competent for the topic and have a good reputation in the field. Please ensure that ***they are willing to review*** this paper.

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