



# SURFACE VEHICLE INFORMATION REPORT



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Florida Exposure of Automotive Finishes

## RATIONALE

This document is cancelled and replaced by SAE J1976.

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1. **Scope**—The purpose of this SAE Information Report is to compare the results of Florida exposure at 45 deg from the horizontal, facing south, with those at 5 deg from the horizontal, facing south, using various types and colors of automotive finishes.
2. **References**—There are no referenced publications specified herein.
3. **Summary**—Fifteen different automotive finishes were used: five nonoxidizing type alkyd enamels, five thermoplastic acrylics, and five thermosetting acrylics. Each group of five included the following colors: white, black, red, blue metallic, and silver metallic.

Several of the finishes selected were not of the maximum durability type currently in use, to insure that differences in gloss retention on exposure would show up.

Sixteen panels of each finish were prepared under constant conditions and the eight sets of 30 panels were exposed (15 at 45 deg and 15 at 5 deg) at six southern Florida exposure sites within a radius of approximately 40 miles of Miami. The total number of panels exposed was 240.

Part of each panel was washed each month using the same washing procedure at each exposure site.

After 12 months exposure all the panels were returned to one location and 60 and 20 deg glossmeter readings were made on both unwashed and washed areas. Readings on all panels were made by one operator using the same glossmeter; the total number of readings was 960.

The panels were then reexposed for an additional 6 months, for a total of 18 months exposure. Gloss readings were again made in the same manner.

One set of panels was returned for additional exposure and was exposed for 32 months.

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**4. Conclusions**

1. Exposure at 5 deg south resulted in greater loss of gloss, on the average, than at 45 deg.
2. Exposure at 5 deg caused faster failure of weaker finishes than did exposure at 45 deg.
3. Finishes with very good gloss retention showed little difference in loss of gloss when exposed at 5 and 45 deg within the duration of this study.
4. While some differences in severity of exposure were noted between the six exposure sites employed, differences were not large and the preceding conclusions hold true regardless of site.
5. The preceding conclusions are supported by gloss retention data from both washed and unwashed areas of the panels.

5. **Recommendation**—To most quickly evaluate automotive finishes under southern Florida exposure conditions, it is recommended that panels be exposed at 5 deg from the horizontal, facing south.

6. **Discussion**—Table 1 shows typical examples selected from the data to illustrate the conclusions.

7. **Exposure Sites**—Six different exposure sites were used. At site 1, three sets of 30 panels were exposed; at each of sites 2–6, one set of panels was exposed.

8. **Glossmeter Readings**—Although only 60 deg glossmeter readings are shown in the preceding examples, the conclusions reached are supported by both 60 and 20 deg glossmeter readings. The 60 deg glossmeter is generally felt to be more suitable for exposure work as the 20 deg glossmeter is more sensitive and 20 deg readings can be affected by panel surface conditions other than gloss.

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