

State of California
AIR RESOURCES BOARD

RESEARCH PROPOSAL

Resolution 09-11

February 26, 2009

Agenda Item No.: 09-2-2

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2675-263, entitled "Low-VOC, Stain Blocking Specialty Primer Coating," has been submitted by California Polytechnic State University, San Luis Obispo;

WHEREAS, the Research Division staff has reviewed and recommended this proposal for approval; and

WHEREAS, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2675-263 entitled "Low-VOC, Stain Blocking Specialty Primer Coating," submitted by California Polytechnic State University, San Luis Obispo, for a total amount not to exceed \$249,637.

NOW, THEREFORE BE IT RESOLVED that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and approves the following:

Proposal Number 2675-263 entitled "Low-VOC, Stain Blocking Specialty Primer Coating," submitted by California Polytechnic State University, San Luis Obispo, for a total amount not to exceed \$249,637.

BE IT FURTHER RESOLVED that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein, and as described in Attachment A, in an amount not to exceed \$249,637.

I hereby certify that the above is a true and correct copy of Resolution 09-11, as adopted by the Air Resources Board.

/s/

Monica Vejar, Clerk of the Board

ATTACHMENT A

“Low-VOC, Stain Blocking Specialty Primer Coating”

Background

Solvents that evaporate from the use of architectural coatings represent a significant portion of California’s volatile organic compound (VOC) emissions. A large architectural coating category is Specialty Primers, Sealers, and Undercoaters (SPSU), which are applied to block water-soluble stains, such as tannins. In 2007, ARB adopted a Suggested Control Measure to limit VOC content to 100 grams per liter (g/L) for many types of architectural coatings by 2010. The VOC limit for SPSU is effective in 2012, because achieving that limit depends upon the development of new low-VOC primer coating options.

Objective

The objective is to develop stain-blocking primers with VOC levels less than 100 g/L that have equal performance properties as current solvent-based primers.

Methods

This project involves several steps. First, Cal Poly will review currently available lower VOC options for existing formulations of other coating categories. Next, they will research the science of staining, using advanced instrumentation to test the effect of typical staining agents on substrates to which SPSU coatings are applied. The contractor will formulate and test SPSU coatings based on low-VOC resins and additives. Finally, Cal Poly will formulate and test SPSU coatings based on new options such as nano-materials that improve barrier properties of coatings, and the use of additives for rheology control that allow for the application of thicker coatings.

Expected Results

We expect that successful completion of this study will lead to the development of technology for application to several additional coatings categories, which would result in improved coatings products for sale and further VOC emissions reductions. The principal investigators are professors in Cal Poly’s nationally-recognized polymers and coatings program, which works closely with the industry. Cal Poly intends to develop a training program encompassing both advances in SPSU coatings and advances in low-VOC coatings technologies, to benefit industries interested in producing California-compliant products. We expect that this project and training program will have positive impacts on low-VOC challenges related to several coatings categories.

Significance to the Board

Commercialization of low-VOC primers that perform as well as conventional solvent-borne primers will lead to VOC emissions reductions, resulting in improved air quality.

Contractor:

California Polytechnic State University, San Luis Obispo

Contract Period:

30 months

Principal Investigators (PIs):

Ray Fernando and Dane Jones

Contract Amount:

\$249,637

Basis for Indirect Cost Rate:

The State and the CSU system have agreed to a 25 percent indirect cost rate.

Past Experience with this Principal Investigator:

Professor Dane Jones has been an investigator for several ARB-sponsored research contracts in the coatings field, and all of these contracts have provided satisfactory products.

Prior Research Division Funding to California Polytechnic State University, San Luis Obispo:

Year	2008	2007	2006
Funding	\$64,057	\$192,172	\$24,234

B U D G E T S U M M A R Y

Contractor: California Polytechnic State University, San Luis Obispo

Low-VOC, Stain Blocking Specialty Primer Coating

DIRECT COSTS AND BENEFITS

1.	Labor and Employee Fringe Benefits	\$ 153,657
2.	Subcontractors	\$ 0
3.	Equipment	\$ 25,000 ¹
4.	Travel and Subsistence	\$ 493
5.	Electronic Data Processing	\$ 0
6.	Reproduction/Publication	\$ 310
7.	Mail and Phone	\$ 0
8.	Supplies	\$ 20,250
9.	Analyses	\$ 0
10.	Miscellaneous	<u>\$ 0</u>

Total Direct Costs \$199,710

INDIRECT COSTS

1.	Overhead	\$ 49,927
2.	General and Administrative Expenses	\$ 0
3.	Other Indirect Costs	\$ 0
4.	Fee or Profit	<u>\$ 0</u>

Total Indirect Costs \$49,927

TOTAL PROJECT COSTS \$249,637

¹ A Minimum Film Formation Tester (MFFT, \$25,000) is needed to quantify the film formation ability of waterborne latex resins, which is critical for the overall performance of fully formulated coatings.