

CPSC-I-10-0015

INTERAGENCY AGREEMENT

BETWEEN THE

**U.S. CONSUMER PRODUCT SAFETY
COMMISSION**

AND THE

**NATIONAL INSTITUTE OF STANDARDS AND
TECHNOLOGY**

Title:


Smoke Alarm Performance in Kitchen Scenario Fires



UNITED STATES DEPARTMENT OF COMMERCE
Office of the General Counsel
Washington, D.C. 20230

AUG 11 2010

MEMORANDUM FOR: Julie A. Weiblinger
Receivables Manager, Finance Division
National Institute of Standards and Technology

FROM: Barbara S. Fredericks 
Assistant General Counsel
for Administration

SUBJECT: Revised Agreement between NIST and CPSC (#CPSC-I-10-0015)
(NIST Tracking # 278)

This provides clearance for the attached revised agreement between the National Institute of Standards and Technology (NIST) and the Consumer Product Safety Commission (CPSC), pursuant to which CPSC will transfer \$425,000 to NIST to evaluate smoke alarm performance from kitchen fires under various installation location and fire scenarios. The end-product will be a report based on information obtained from a minimum of 24 common cooking fire and nuisance scenarios. The agreement becomes effective when signed by the parties and terminates on September 30, 2011.¹ It was revised to require that additional transfers of funds be made pursuant to amendment to the agreement and to include the correct legal authority.

The agreement is proper pursuant to the Consumer Product Safety Act, 15 U.S.C. § 2078(d), which states:

The Commission shall, to the maximum extent practicable, utilize the resources and facilities of the National Institute of Standards and Technology, on a reimbursable basis, to perform research and analyses related to risks of injury associated with consumer products (including fire and flammability risks), to develop test methods, to conduct studies and investigations, and to provide technical advice and assistance in connection with the functions of the Commission.

NIST possesses programmatic authority to conduct the requested work pursuant to 15 U.S.C. § 278f, which authorizes NIST to conduct basic and applied fire research.

¹ Although CPSC is transferring one-year funds that expire on September 30, 2010, CPSC considers the research non-severable and has determined that it would not receive a benefit without the final report evaluating and assessing the research. Accordingly, CPSC has established a *bona fide* need for use of Fiscal Year 2010 one-year funds for research that extends into Fiscal Year 2011.

If you have any questions about this matter, please contact Judith Means of my staff at (202) 482-0387.

Attachment

Interagency Agreement
between the
U.S. Consumer Product Safety Commission (CPSC)
and the
National Institute of Standards and Technology (NIST)

1. Background and Purpose: According to National Fire Protection Association (NFPA), there were 1,451,500 fires reported in the U.S. during 2008. These fires caused 3,320 civilian fire deaths, 16,705 civilian fire injuries, and \$15.5 billion in property damages. Homes with smoke alarms (whether or not the alarms were operational) typically have a death rate that is about 40-50% less than the rate for homes without alarms. A 2008 survey found that 96% of U.S. households had at least one smoke alarm; yet in 2003-2006, no smoke alarms were present or none operated in two out of five (41%) of the reported home fires.

Cooking appliances that initiate fires are the leading ignition sources causing 150,000 home structure fires leading to 500 deaths and 4660 injures on an annual basis (2003 to 2006 yearly average). On the front line of kitchen fire safety are smoke alarms. Fires from un-attended / un-supervised (children) cooking can grow rapidly, thus early detection from working smoke alarms is critical. Unfortunately, smoke alarms are susceptible to nuisance alarms from cooking aerosols and subject to intentional power disconnection or alarm removal. The question that is a struggle for consumers and even smoke alarm experts is: What type of smoke alarm and how far away from the kitchen (the origin of the nuisance aerosols) should it be deployed to guarantee a reduction in nuisance alarm frequency to tolerable levels, while maintaining a high detection capability for kitchen fires? To answer that question we need to know: How fast do kitchen fires grow, and how quickly does the hazard develop? What are the characteristics of nuisance source aerosols, and what are their spatial and temporal concentration distributions for typical cooking activities? What are the alarm response characteristics to fire and nuisance aerosol exposure? Are there any new detection technologies that will improve the situation? How will new technologies be evaluated? To begin to answer these questions, the following research is proposed.

The purpose of this Interagency Agreement is to have NIST conduct a minimum of 24 full scale cooking fire and nuisance scenario tests. A minimum of six tests will involve overhead cabinetry fires. The cooking fire scenarios will be selected based on the hazard and prevalence indicated by statistical fire data collected in the National Fire Incident Reporting System, and analysis conducted by the National Fire Protection Association. The nuisance scenarios will be selected based on NIST and CPSC research, and other sources that detail kitchen nuisance alarm events.

Initial work will be performed at the bench scale before proceeding to the large scale. Bench scale testing will be conducted using a cone calorimeter to assess the ease of ignition and heat release rates of cabinetry materials to guide the selection of cabinetry for full scale fire tests. A test structure will be constructed to represent a kitchen and attached spaces (living/dining rooms, hallways and bedrooms). NIST will assess the sensitivity of all smoke alarms used in the test by measuring the response of each alarm to a smoldering and flaming smoke source in the NIST Fire Emulator/Detector Evaluator. NIST will conduct full-scale experiments based on selected fire and nuisance alarm scenarios to characterize key fire and nuisance alarm signatures (aerosol

properties, combustion gases, heat, velocity, and video signatures) at multiple locations in the test structure. NIST will monitor and record the alarm status of at least an ionization, photoelectric, and dual sensor smoke alarms spaced 5 ft, 10 ft, 15 ft, 20 ft, 25 ft, and 30 ft from the main cooking appliance, along with temperature, combustion gases, and smoke extinction at selected locations in the test structure to assess hazard development. NIST will write a report on the comprehensive data set of fire and nuisance signatures, and the performance of current technologies related to kitchen fires and nuisance alarms. If appropriate, down-select key nuisance source and fire scenario signatures for test standard development, and propose a test standard protocol for nuisance resistant alarms.

2. Statutory Authorities: Fire Prevention and Control Act of 1974 and Section 29(d) of the Consumer Product Safety Act, 15 USC 2078(d).

The Commission shall, to the maximum extent practicable, utilize the resources and facilities of the National Bureau of Standards (now the National Institute of Standards and Technology, on a reimbursable basis, to perform research and analyses related to risks of injury associated with consumer products (including fire and flammability risks), to develop test methods, to conduct studies and investigations, and to provide technical advice and assistance in connection with the functions of the Commission.

NIST possesses programmatic authority to conduct the requested work pursuant to 15 U.S.C. 278f Fire Research.

The NIST Organic Act, 15 U.S.C. 273, 275a, and 278b, which authorizes NIST to exercise its functions for the Government of the United States and to accept reimbursement for the provision of such functions.

3. Duration of Agreement (Period of Performance): Last signature date to September 30, 2011.

4. Objective: The objective is to evaluate smoke alarm performance from kitchen fires under various installation locations and fire scenarios and to assess the propensity for nuisance alarming based on the alarm technology and distance from the cooking appliance.

5. Description of Services:

- a. CPSC staff and NIST will work together to outline the data and develop a report.
- b. Phases: The following phases will be undertaken to accomplish this objective:
 - Phase 1 (month 1): Obtain safety approval and identify materials for the bench scale study.
 - Phase 2 (month 3): Develop full-scale experimental plan based on completed research of databases and literature.
 - Phase 3 (month 6): Complete bench scale testing. Characterize smoke alarm sensitivities.
 - Phase 4 (month 9): Complete at least 50% of the Large Scale experiments and analyze initial data.
 - Phase 5 (month 12): Complete the remaining Large Scale experiments and data analysis.

- c. Disposition of Equipment: As appropriate by NIST disposal procedures
7. Government Provided Labor:
- a. CPSC labor:
CPSC staff will work jointly with NIST designing the testing matrix.
 - b. NIST labor:
NIST staff will conduct the testing, analysis, and reporting.
8. Reporting: A report will be produced and reviewed by each agency before being released to the public. NIST will produce the report.
9. Payment: CPSC will transfer \$425,000.00 to NIST as reimbursement for undertaking the activities contemplated by this agreement. This transfer will be made in advance.
10. Funding: The transfer of funds shall be from CPSC to NIST through the On-Line Payment Collection (OPAC) system.
11. Accounting and billing information:

CPSC Accounting Data:

TIN: 520978750
ALC: 61-00-0001
DUNS: 069287522
US TREAS CODE (TAS): 6100100
0100A10DPS 2010 2155700000 EXHR004400 253A0
FUNDING CODE: 00001
BUSINESS EVENT TYPE CODE: DISB
CPSC Funds Expire on: September 30, 2010

NIST Accounting Data:

TIN: 530205706
ALC: 13-06-0001
DUNS: 929956050
TREASURY ACCOUNT SYMBOL (TAS)/APPROPRIATION: 13X4650
FUNDING CODE: 1341
BUSINESS EVENT TYPE CODE: COLL

12. Modification and Cancellation: This IAG may be modified by mutual consent of both parties or canceled upon 60 days advance written notice by either party. If CPSC terminates the agreement, NIST is authorized to collect costs incurred prior to cancellation of the order plus any termination costs, up to the total value of the agreement.

NIST Accounting Data:

TIN: 530205706
ALC: 13-06-0001
DUNS: 929956050
TREASURY ACCOUNT SYMBOL (TAS)/APPROPRIATION: 13X4650
FUNDING CODE: 1341
BUSINESS EVENT TYPE CODE: COLL

12. Modification and Cancellation: This IAG may be amended at any time by mutual written consent of both parties or canceled upon 60 days advance written notice by either party. If CPSC terminates the agreement, NIST is authorized to collect costs incurred prior to cancellation of the order plus any termination costs, up to the total value of the agreement.

13. Confidentiality Requirements

A. All information reported to or otherwise obtained by the Commission or its agents under the Consumer Product Safety Act (CPSA) (and shared with or provided to NIST), which information contains or relates to a trade secret or other matter referred to in section 1905 of title 18, United States Code, or subject to section 552(b)(4) of title 5, United States Code, shall be held in confidence and kept secret by NIST personnel to the extent permitted by law.

B. To the extent permitted by law, including the Freedom of Information Act, NIST agrees not to release the identity of the manufacturer of the product being tested (example: smoke alarms, heat detectors, sprinklers heads) encompassed by the subject of this IAG without the written consent of CPSC's Office of General Counsel.

C. All documents and other materials developed pursuant to this IAG shall have appropriate disclaimers to indicate the work was performed pursuant to the IAG by NIST; that the materials are the views of the staff or members (present or previous at time of dissemination) of NIST; that, although they may have been developed in conjunction with CPSC staff and sponsors, the materials do not necessarily represent the views of the United States Consumer Product Safety Commission and other sponsors.

14. AGENCIES:

- National Institute of Standards and Technology
Building and Fire Research Laboratory
Polymers Building, Building 224
100 Bureau Drive
Gaithersburg, MD 20899

Technical/Project Officer point of contact:

Name: Thomas Cleary

Title: Engineer

Telephone: (301) 975-6858
FAX: (301) 975-3652
Email: Thomas.cleary@nist.gov

- U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

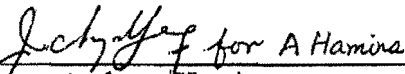
Technical/Project Officer point of contact

Name: Arthur Lee
Title: Engineer
Telephone: (301) 504-7539
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Email: alee@cpsc.gov


15. Disagreements: In the event that a disagreement arises between CPSC and NIST under this IAG, the parties shall cooperatively resolve the disagreement among themselves. If the disagreement cannot be resolved between CPSC and NIST, then they shall agree to seek the assistance of a third party to resolve the disagreement. The area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration. If agreement of interpretation is not reached within 30 days, the parties shall forward written presentation of the disagreement to respective higher officials for appropriate resolution. If a dispute related to funding remains unresolved for more than 30 calendar days after the parties have engaged in an escalation of the dispute, the parties agree to refer the matter to their respective Agency Chief Financial Officers with a recommendation that the parties submit the dispute to the CFO Council Intragovernmental Dispute Resolution Committee for review in accordance with Section VII of Attachment 1 to the Treasury Financial Manual, Volume 1, Bulletin No. 2007-03, Intragovernmental Transactions, Subject: Intragovernmental Business Rules, or subsequent guidance.

16. Approvals

For: National Institute of Standards and Technology

Signature 
Printed Name: Anthony Hamins
Title: Division Chief, Fire Research Division
Date: 8/12/10

For: U.S. Consumer Product Safety Commission

Signature 
Printed Name: Donna Hutton
Title: Contracting Officer
8/13/10