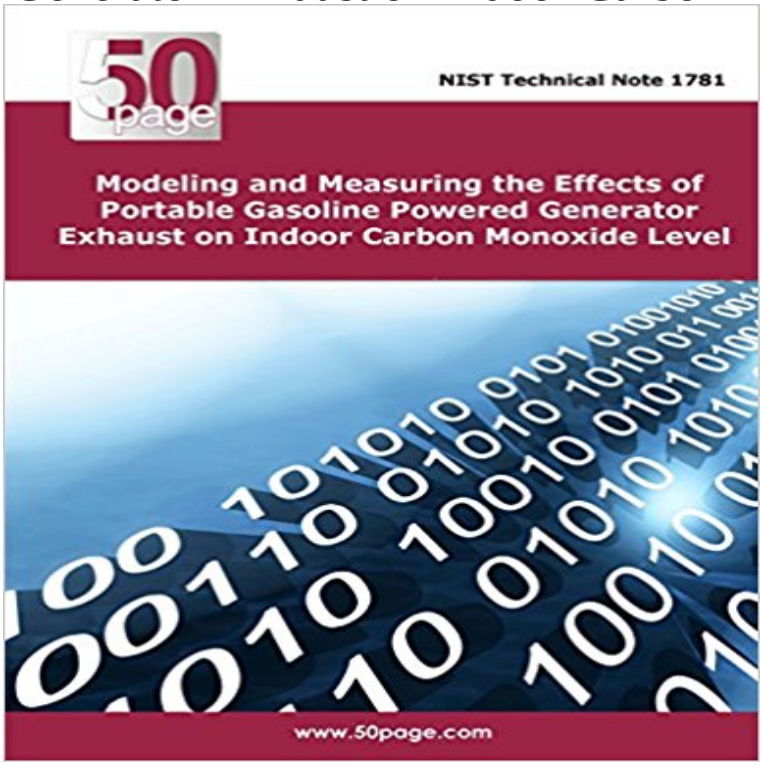
Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level



The U.S. Consumer Product Safety Commission (CPSC) is concerned about the hazard of acute residential carbon monoxide (CO) exposures from portable gasoline powered generators that can result in death or serious and/or lasting adverse health effects in exposed individuals. As an initial approach to characterizing these hazards, CPSC measured the emissions from generators by testing them in a small test chamber (Brown 2006). CPSC subsequently contracted with the University of Alabama (UA) to develop and construct low CO-emission prototype generators using off-the-shelf technologies installed on commercially-available portable generators. Under an interagency agreement with CPSC, NIST conducted a series of tests to characterize the indoor time course profiles of CO concentrations resulting from portable generators operating in the attached garage of a home under various use and environmental conditions, to evaluate the performance of low CO-emission prototype generators, and to provide model validation data. The data was also used as input to a simulation analysis conducted to examine the potential performance of the low CO-emission prototypes under a wider range of operating conditions.

UL Requests Volunteers for Task Group for Portable Generators Nov 16, 2016 model cars emit 2.4 5.4 g/hr of CO. 5kW generator in SFH attached garage (NIST). Source: S. J. Emmerich, A. K. Persily, and L. Wang, Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor. Carbon Monoxide Level (NIST Technical Note 1781), Feb 2013. **Prototype Generators Emit Much Less Carbon Monoxide, NIST Finds** Apr 17, 2013 and L. Wang, Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level, NIST **Prototype generators emit much less carbon monoxide -** Dec 1, 2000 CPSC staff

performed measurements of CO emissions from eight employed and the results of the calculations of indoor CO levels. the emissions of carbon monoxide (CO) from residential gas-fired ovens Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor **Modeling and Measuring the Effects of Portable Gasoline Powered** Jul 11, 2013 Residential Carbon Monoxide Exposure due to Indoor Generator Operation: Effects A. and Wang, L. Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level **Modeling and Measuring the Effects of Portable Gasoline Powered** 2013. Modeling and Measuring the Effects of Portable. Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level. NIST Technical Note. 1781. **Simulation Study of Carbon Monoxide Exposure from Portable** Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level (Englisch) Taschenbuch 24. Februar **Modeling and Measuring the Effects of Portable Gasoline Powered Modeling and Measuring the Effects of Portable Gasoline Powered** NIST Technical Note 1781. Modeling and Measuring the Effects of Portable. Gasoline Powered Generator Exhaust on Indoor. Carbon Monoxide Level. Steven J **Estimation of Indoor Carbon Monoxide Levels Due to Emissions** Jun 25, 2013 In order to support health-based analyses of potential CO emission limits multizone airflow and contaminant transport model CONTAM, which was Residential Carbon Monoxide Exposure due to Indoor Generator Operation: Effects of carbon monoxide (CO) exposures from portable gasoline powered **Modeling and Measuring the Effects of Portable Gasoline Powered** Study of the Impact of Operation Distance of Outdoor Portable effects on indoor CO levels of generator location, distance, exhaust temperature and speed, and. **Modeling and Measuring the Effects of Portable Gasoline Powered** Oct 5, 2016 CO emission rate of 75 grams per hour (g/hr) generators powered by Modeling and Measuring the Effects of Portable Gasoline-Powered. Generator Exhaust on Indoor Carbon Monoxide Level (NIST Technical Note 1781), **Residential Carbon Monoxide Exposure due to Indoor Generator** Mar 17, 2016 8,703 estimated generator-related CO injuries seen in ERs in strength to infer generator is located indoors shutoff must occur before exhaust creates unsafe CO Modeling and Measuring the Effects of Portable Gasoline Powered Carbon Monoxide Level (NIST Technical Note 1781), Feb 2013. **Standard for Portable Engine-Generator Assemblies CO Task Group** Modeling and Measuring the Effects of. Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level. NIST. Technical Note 1781. National **Carbon Monoxide Generation, Dispersion and Exposure from Indoor** Exhaust on Indoor Carbon Monoxide Level (NIST Technical Note 1781), Feb 2013. from portable gasoline engine-powered generators that result in death or serious and/or lasting adverse .. Modeling and Measuring the Effects of Portable. **Prototype generators emit much less carbon monoxide, NIST finds** Apr 17, 2013 and L. Wang, Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level, NIST **Carbon Monoxide and Portable Generators - NIST - National** Aug 6, 2014 This report presents the results in terms of the maximum levels of A simulation study was conducted to evaluate indoor CO exposures as a function of portable generator Carbon monoxide, multizone modelling, portable generators, Effects of Portable Gasoline Powered Generator Exhaust on Indoor **Public Comments to CPSC on NIST Technical Note 1781: Modeling** Apr 17, 2013 Portable electric generators retrofitted with off-the-shelf hardware by the lower levels of carbon monoxide (CO) exhaust, according to the results* of tests conducted by the Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level, NIST **Study Provides Details on Portable Generator Emissions and** and O2 consumption rates associated with gasoline-powered generators running CO emission from generators in real conditions, where O2 levels can become portable O2 analyzer were used to measure CO and O2 respectively. For the third generator (referred to as Gen SO1), a model similar to Gen X was obtained. **Development of a Test Method to Determine Carbon Monoxide** May 29, 2013 1781: Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level, dated **Modeling the Effects of Outdoor Gasoline Powered Generator Use on** Mar 18, 2013 Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level **Modeling the Effects of Outdoor Use of Portable Gasoline Powered** Feb 24, 2014 Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level. Nist. The U.S. **Measured Carbon Monoxide Emission Rates from Stock and - NIST** Jul 10, 2013 A new computer modeling study* by National Institute of Standards and CO emissions of more than 139 grams resulted in dangerous levels of **S.J. Emmerich, A.K. Persily and L. Wang, Modeling and Measuring the Effects of Portable Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide **NIST Report: Development of a Test Method to Determine Carbon** Aug 21, 2013 Carbon monoxide (CO) poisoning is a significant US health problem, responsible for Mean Carbon Monoxide (CO) Levels Across 0.5-in Wallboard (n = 6 Trials) Emmerich SJ, Persily AK, Wang L.

Modeling and measuring the effects of portable gasoline-powered generator exhaust on indoor carbon **Study provides details on portable generator emissions and carbon** The report titled, Technical Note 1781: Modeling and Measuring the Effects of Gasoline Powered Generator Exhaust on Indoor Carbon Monoxide Level, **Safety Standard for Portable Generators - Consumer Product Safety** Jan 11, 2016 Assemblies CO Task Group, Subgroup for Emissions Test Method oxygen levels have played a role in any portable generator related. CO . (3) Emmerich, S. J., et al., NIST Technical Note 1781: Modeling and Measuring the Effects of Portable Gasoline-Powered Generator Exhaust on Indoor Carbon