

Appendix E

Public Meeting & Workshop Notices and Materials



Linda S. Adams
Secretary for
Environmental Protection

Air Resources Board

1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov



Arnold Schwarzenegger
Governor

July 6, 2007

Dear Sir or Madam:

You are invited to attend a meeting of the Air Resources Board's (ARB or Board) Reactivity Research Advisory Committee (RRAC). At this meeting, ARB staff will discuss the status of our reactivity program. This will include an update of recent reactivity projects; reactivity-related activities on aerosol coatings, consumer products, architectural coatings, and other source categories; volatile organic compound (VOC) exemption status; and a planned regulatory amendment to the maximum incremental reactivity (MIR) scale. The meeting will be held at the following time and place:

Tuesday, August 28, 2007
1 PM - 5 PM
California Environmental Protection Agency
Conference Room 550
1001 I Street, 5th Floor
Sacramento, California 95814

Prior to the RRAC meeting, Dr. William Carter (University of California, Riverside) will present a Chair's Air Pollution Seminar on his recently completed research project, "Documentation of the SAPRC-07 Chemical Mechanism and Updated Ozone Reactivity Scales", from 10 AM – 11:30 AM on August 28, 2007. The seminar will be at the Byron Sher Auditorium in the Cal/EPA building, and webcast. More information will be posted at <http://www.arb.ca.gov/research/seminars/seminars.htm>.

If you would like to participate in the development of the ARB's reactivity research program, please attend this meeting. The meeting agenda and presentations will be posted prior to the meeting, on the ARB's website at <http://www.arb.ca.gov/research/reactivity/reactivity.htm>. For further information, you may contact me at (916) 324-8496 or dluo@arb.ca.gov, or Ralph Propper at (916) 323-1535 or rpropper@arb.ca.gov.

Sincerely,

/S/

Dongmin Luo, Ph.D., P.E.
Manager, Air Quality and Climate Science Section
Research Division

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

cc: Alberto Ayala, Ph.D.
Chief, Climate Change Mitigation and Emissions Branch

Ralph Propper
Air Quality and Climate Science Section

REACTIVITY RESEARCH ADVISORY COMMITTEE MEETING

When: August 28, 2007 (1 PM - 5 PM, PDT)

Where: Conference Room 550, 1001 I Street (Cal/EPA bldg), Sacramento

Conference Call: You may participate by conference call:

Toll Number: 1-210-234-0001; Passcode: 66720; Leader: Ralph Propper

Note: The committee meeting will be preceded by Dr. Bill Carter's (UC Riverside) "Chair's Air Pollution Seminar" titled "Development of the SAPRC-07 Chemical Mechanism and Updated Ozone Reactivity Scales". This seminar will be at Cal/EPA's Byron Sher Auditorium from 10 AM - noon (PDT), and will be webcast. More information is posted at <http://www.arb.ca.gov/research/seminars/carter2/carter2.htm>.

AGENDA

1:00 – 1:10	Introduction	Dongmin Luo, ARB/RD
1:10 – 2:00	VOC Research Update	
	• SAPRC-07 Mechanism	Bill Carter, UCR
	• SAPRC-07 Peer Review & Implementation	Ajith Kaduwela, ARB/PTSD
	• Pesticide VOCs	Bill Carter, UCR
	• Consumer Products	Bill Carter, UCR
2:00 – 3:00	ARB Reactivity Update	
	• Aerosol Coatings	Carla Takemoto, ARB/SSD
	• Consumer Products	Jessica Dean, ARB/SSD
	• Architectural Coatings	Jim Nyarady, ARB/SSD
	• RFG3 Program	Steve Brisby, ARB/SSD
	• CF/LEV Program	Paul Hughes, ARB/MSCD
3:00 – 3:30	Related Issues	
	• US EPA Update	Stan Tong, EPA Region IX
	• VOC Exemption	Dongmin Luo, ARB/RD
3:30 – 4:30	MIR Update	Ralph Propper, ARB/RD
4:30 – 5:00	Discussion & Next Steps	Dongmin Luo, ARB/RD

Proposed Amendment: Tables of Maximum Incremental Reactivity (MIR) Values

Reactivity Research Advisory Committee
August 28, 2007

Sacramento, California

California Environmental Protection Agency



Air Resources Board

Aerosol Coating Products Regulation

- 2000: Board approved amendments to the Aerosol Coating Products Regulation
- Also approved new subchapter with MIR values
- Reactivity limits (effective 2001) for 36 coating categories based on MIR scale

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Board Directive to Executive Officer

- Review MIR values every 18 months
 - Revise if necessary
- Amendments to update MIR values, conducted thru Exec. Officer public hearing

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Using the MIR Values

- MIR values (2000) used to calculate Product-Weighted MIR (PWMIR) values for aerosol coatings
- MIR values for aerosol coatings unchanged until June 1, 2007
- Only the MIR values for new compounds added to the existing tables can be used in aerosol coatings prior to June 1, 2007

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2000 Tables of MIR Values

Based on earlier work by Dr. Carter (UCR),

- Section 94700: MIR values for almost 700 individual VOCs or mixtures
- Section 94701: MIR values for 24 classes of hydrocarbon solvents

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2003 Tables of MIR Values

Based on work reported by Dr. Carter in 2002

- Section 94700: MIR values for almost 800 individual VOCs or mixtures
- Section 94701: MIR values for 24 classes of hydrocarbon solvents (unchanged)

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MIRs, Sec 94700: 2003 vs 2000

- 102 new compounds with MIR values added to Section 94700 of CCR
- 14 existing VOCs: updated MIR values
 - MIR values changed by > 5%
- No changes to Section 94701

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Why Amend MIR Values?

- Board resolution: review tables every 18 months
- Last amended in December 2003
- Regulations should be based on “best science”
- Dr. Carter’s research: significant change for some MIR values due to new SAPRC-07 mechanism
- Hundreds of VOCs added to SAPRC mechanism, and also MIR tabulation

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Section 94700 & 94701 Changes

- Add hundreds of new VOCs or mixtures
- Continued use of Upper Limit Estimates
- Revised column for MIR value
- Review of bin values for hydrocarbon solvents
 - New solvents
 - Impacts of new MIR values on bin system

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Scientific Basis for the Proposal

- Dr. Carter’s review of MIR values
 - >1500 experiments
 - Major revision of the chemical mechanism (from SAPRC-99 to SAPRC-07)
 - Additions/changes: chlorine chemistry, aromatic mechanisms, PM prediction
 - Explicit mechanisms for >700 VOC types

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Scientific Basis for the Proposal

(Continued)

- Hundreds of VOCs or mixtures added; now ~1100 VOCs or mixtures. More?
 - Overall, MIR values changed by ~10%
 - But, 35 VOCs changed by >35%
 - And, 5 VOCs changed by a factor of 2

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Scientific Reviews

- Research Screening Committee approved Dr. Carter’s draft final report (SAPRC-07)
- Contracts to evaluate SAPRC-07, by independent distinguished scientists
- Reactivity Scientific Advisory Committee will review scientific basis of the proposal

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Environmental Impacts

- California Environmental Quality Act (CEQA) requires evaluation of impacts
 - Particulate Matter (PM)
 - Global Warming
 - Stratospheric Ozone Depletion
 - Water Quality & Landfill Loading
 - Increased Use of Toxics
 - Tropospheric Ozone Concentrations

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Economic and Other Impacts

- Evaluate economic impacts on existing products
- Other reactivity-based regulations
 - Low-Emission Vehicle/Clean Fuel regulation
 - Future reactivity-based regulations for other source categories
- Environmental Justice

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Time-Line

- Dr. Carter's Report & RRAC meeting - today
- Additional VOCs? – due September 14
- Peer Review of SAPRC-07 Mechanism, Reactivity Scientific Advisory Committee review, and Final MIR Values - December 2007
- ARB Staff's Draft Proposal – early 2008
- ARB Staff Report – March 2008
- ARB Governing Board hearing – June 2008
 - with hearing for consumer product regulation

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Summary

- Board requirement to periodically review reactivity-based regulations
- Dr. Carter's review shows the need for significant changes
- June 2008 Board Hearing for proposed amendments to tables of MIR values; coordinated with consumer product regulatory review

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Reminder

- If you suggest candidates by September 14, Dr. Carter may develop MIR values for:
- Additional VOCs?
 - New solvents?

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Contact us

- Ralph Propper: rpropper@arb.ca.gov, (916) 323-1535
- Dongmin Luo: dluo@arb.ca.gov, (916) 324-8496
- Website: www.arb.ca.gov/research/reactivity/reactivity.htm

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March 20, 2009

Dear Sir or Madam:

You are invited to attend a meeting of the Air Resources Board's Reactivity Research Advisory Committee (RRAC). At this meeting, ARB staff will discuss the status of our reactivity program. The meeting will be held at the following time and place (note room change), and will be webcast at <http://www.calepa.ca.gov/broadcast/?BDO=1>:

Tuesday, March 25, 2009
1 PM – 4 PM
California Environmental Protection Agency Building
Coastal Hearing Room, Floor 2
1001 I Street, Sacramento, California 95814

Prior to the RRAC meeting, the ARB's Reactivity Scientific Advisory Committee (RSAC) will meet 9 AM – 12 PM in the First Floor Training Room, East. RSAC members are Air Resources Board appointees and will discuss the SAPRC-07 peer review and new tables of Maximum Incremental Reactivity (MIR) values. Because this is a small room, public attendance at the RSAC meeting requires prior notification to staff (see below) by Monday, March 23. You may also view this meeting through web conference at: <http://connectpro82766679.acrobat.com/rsac>.

The RRAC meeting will include a recapitulation of the morning RSAC meeting; reactivity-related activities on consumer products, architectural coatings, and other source categories; an update of recent reactivity research projects (SAPRC-07, consumer products, aromatics, architectural coatings, secondary organic aerosols, VOC surrogate, and Paint and Architectural Coatings Environmental Study); VOC exemption status; and a planned regulatory amendment to the maximum incremental reactivity (MIR) scale and bin values.

If you would like to participate in the development of the ARB's reactivity research program, please attend the RRAC meeting. For meeting agenda and presentations for both RSAC and RRAC meetings, check our website at <http://www.arb.ca.gov/research/reactivity/reactivity.htm>. For further information, you may contact me at (916) 324-8496 or dluo@arb.ca.gov, or Ralph Propper at (916) 323-1535 or rpropper@arb.ca.gov.

Sincerely,

/S/

Dongmin Luo, Ph.D., P.E.
Manager, Air Quality and Climate Science Section, Research Division

**Meeting of the Air Resources Board's
Reactivity Research Advisory Committee (RRAC)**

1 PM – 4 PM, Wednesday March 25, 2009
Sierra Hearing Room
Cal/EPA Building, Second Floor
1001 I Street, Sacramento, CA 95814

Webcast: <http://www.calepa.ca.gov/broadcast/?BDO=1>

Call-In (Toll): 1-877-677-0147
Passcode: 6256353#
Leader: Ralph Propper

Agenda

- Introduction – Dongmin Luo, ARB (5 min.)
- Recap of Reactivity Scientific Advisory Committee (RSAC) Meeting
– Bill Carter, UCR (10 min.)
- Update on Reactivity-Related Programs, EPA & Districts (10 min.)
 - US EPA activities – Stanley Tong, US EPA (5 min.)
 - SCAQMD activities – Naveen Berry, SCAQMD (5 min.)
- Update on Reactivity-Related Programs, ARB (10 min.)
 - Consumer Products – Carla Takemoto, ARB (5 min.)
 - Architectural Coatings – Jim Nyarady, ARB (5 min.)
- Recent Reactivity Research (50 min.)
 - Paint and Architectural Coatings Environmental Study (PACES)
– Jim Nyarady, ARB (10 min.)
 - SAPRC-07 & recap of MIR/Bin updates, consumer products,
aromatics, architectural coatings, secondary organic aerosol,
VOC surrogate (U. Texas)
– Bill Carter, UCR (40 min.)
- MIR/Bin Update amendment – Ralph Propper, ARB (10 min.)
- VOC Exemption – Ralph Propper, ARB (10 min.)
- Public Comments (30 min.)
- Conclusion

Proposed Amendment: Tables of Maximum Incremental Reactivity (MIR) Values

Reactivity Research Advisory Committee

March 25, 2009

www.arb.ca.gov/research/reactivity/reactivity.htm

Ralph Propper: rpropper@arb.ca.gov, (916) 323-1535

California Environmental Protection Agency



Air Resources Board

2000 vs 2003: Tables of MIR Values

- 2000:
 - Section 94700: MIR values for ~700 individual VOCs or mixtures
 - Section 94701: MIR values for 24 classes of hydrocarbon solvents
- 2003:
 - Section 94700: MIR values for ~800 individual VOCs or mixtures
 - Section 94701: no change to MIRs for 24 bins of HC solvents
 - 102 new compounds with MIR values added to Section 94700
 - For 14 existing VOCs, MIR values changed by > 5%

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Regulatory Status, 2000

- Amended Aerosol Coating Products Regulation
 - includes Reactivity
- New subchapter with MIR values
- Reactivity limits for 36 coating categories based on MIR scale
- Board Directive to Executive Officer:
 - Review MIR values every 18 months (Revise if necessary)
 - Amendments to update MIR values, conducted thru Executive Officer public hearing

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Why Amend MIR Values?

- Board resolution: review tables every 18 months
- Last amended in December 2003
- Regulations should be based on "best science"
- Dr. Carter's research: significant change for many MIR values due to new SAPRC-07 mechanism
- Hundreds of VOCs added to SAPRC mechanism, and also MIR tabulation

4

Section 94700 & 94701 Changes

- Add hundreds of new VOCs or mixtures
- Revised column for MIR value
- Review of bin values for hydrocarbon solvents
 - New solvents
 - Impacts of new MIR values on bin system

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Dr. Carter's review of MIR values

- SAPRC-99 to SAPRC-07: major revision
- 1500 experiments, ~350 VOCs/mixtures added
- Corrections/modifications to mechanisms
- Additions/changes: chlorine chemistry, aromatic mechanisms, PM prediction
- Overall, MIR values lowered by ~7%
- 94% of VOCs: MIR values changed <30%
- But, 8 VOCs changed >60%

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Scientific Reviews

- Research Screening Committee approved Dr. Carter's draft final report for SAPRC-07
- SAPRC-07 Peer Review: Evaluation by independent distinguished scientists
- Reactivity Scientific Advisory Committee reviewed the scientific basis for SAPRC-07, and resulting MIRs

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Environmental Impacts

- California Environmental Quality Act (CEQA) requires evaluation of impacts
 - Particulate Matter (PM)
 - Global Warming
 - Stratospheric Ozone Depletion
 - Water Quality & Landfill Loading
 - Increased Use of Toxics
 - Tropospheric Ozone Concentrations

8

Economic and Other Impacts

- Evaluate economic impacts on existing products
- Other reactivity-based regulations
 - Low-Emission Vehicle/Clean Fuel regulation
 - Future reactivity-based regulations for other source categories
- Environmental Justice

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Timeline

- Peer Review of SAPRC-07 Mechanism, Reactivity Scientific Advisory Committee review, and Final MIR Values – today
- Proposed amendments to tables of MIR values, including hydrocarbon solvent bins
 - ARB Staff Report – summer 2009
 - ARB Exec. Officer hearing – fall 2009

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Linda S. Adams
Secretary for
Environmental Protection

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov



Arnold Schwarzenegger
Governor

July 16, 2009

Dear Sir or Madam:

The California Air Resources Board (ARB/Board) staff invites you to join us on Tuesday, August 4, 2009, at 9:30 a.m. (PDT) for two public workshops to discuss development of 1) proposed amendments to the consumer products regulation and ongoing consumer products program activities, and 2) proposed amendments to the tables of MIR (reactivity) values for Volatile Organic Compounds (VOC).

Consumer Products Program Public Workshop

This is the second workshop regarding the consumer product proposals that will be presented to the Board on September 24, 2009. Specifically, we intend to discuss the proposed amendments, proposed regulatory categories and the rulemaking schedule. This rulemaking is focused on three specific categories: Air Fresheners (double phase aerosol), Multi-Purpose Solvents, and Paint Thinners. In March of this year we released draft proposals related to this rulemaking and on April 1, 2009, we held the first public workshop. We anticipate releasing proposed regulatory language and other meeting handouts, prior to the August 4th workshop, at the following website: <http://www.arb.ca.gov/consprod/regact/tscpwg/tscpwg.htm>. Notification will be sent via ARB's Consumer Products Program email list when new materials are posted.

In addition to VOC limits for the three specific categories, we are also proposing other regulatory modifications affecting Exemptions, Administrative Requirements and Reporting Requirements. We are also proposing modifications to ARB Test Method 310 to accommodate lower VOC limits that will soon be effective. Finally, we are proposing other minor clarifications to the regulation.

Reactivity Program Public Workshop

In conjunction with the consumer products regulation amendments, we will discuss development of proposed amendments to the tables of MIR (reactivity) values for VOCs. This will be the first public workshop regarding reactivity proposals that will be presented at a public hearing on November 3, 2009, in Sacramento. When the Board approved regulations containing maximum incremental reactivity (MIR) values, it required periodic reviews of MIR values and revisions, if necessary. The Board also directed that amendments to update the MIR values be conducted through an Executive Officer Public Hearing, due to their technical nature.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

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Sir or Madam
July 16, 2009
Page 2

Dr. Bill Carter recently submitted an updated report, "Updated Maximum Incremental Reactivity Scale and Hydrocarbon Bin Reactivities for Regulatory Applications", and an associated spreadsheet "HCcalc", posted at the following website: <http://www.arb.ca.gov/research/reactivity/reactivity.htm>. We intend to use the MIR values in this report as the basis for the revision to be considered at the hearing.

This report presents an updated table of MIR values for quantifying relative ground-level ozone impacts of VOCs and a revised "bin" method to derive MIR values for complex hydrocarbon solvents. The revised method derives a chemical composition for each hydrocarbon bin, and uses MIR values for each constituent to calculate the MIR value for each bin. Please review the report and its list of compounds and mixtures with MIR values, and let us know on or before August 4, 2009, if you have any comments or any additional substances that should be listed.

Participant Information

We look forward to your participation. The workshops will be held at ARB's Monitoring and Laboratory Division Building, 1927 13th Street, First Floor Conference Room, in Sacramento, California. You may attend in person or participate via teleconference. The following information is needed to participate via teleconference:

Date and Time:	Tuesday, August 4 at 9:30 a.m. (PDT)
Call-in Time:	Between 9:15 a.m. and 9:30 a.m.
Toll Free Number:	(888) 889-6350 (U.S. callers)
Toll Number:	(415) 228-4886 (International callers)
Passcode:	CONSUMER PRO

The most current information available on the ARB Consumer Products Program can be found at the following website: <http://www.arb.ca.gov/consprod/consprod.htm>. From this address, you can sign up for ARB's Consumer Products Program email list, which will send you an email notice when any new information is posted to the Consumer Products website.

The most current information available on the ARB Reactivity Program can be found at the following website: <http://www.arb.ca.gov/research/reactivity/reactivity.htm>. To stay up-to-date on new postings to this website, and for current information on Reactivity Events, please subscribe to the ARB's Reactivity Mailing List Server.

If you require special accommodations or language needs, please contact Trish Johnson at (916) 445-3365 tjohnson@arb.ca.gov as soon as possible, but no later than

Sir or Madam
July 16, 2009
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ten business days, before the August 4th workshop. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

If you have any questions about this letter or the regulatory development process for consumer products, please contact Mr. David Mallory, Manager, Measures Development Section at (916) 445-8316, or by email at dmallory@arb.ca.gov. If you have any questions about the reactivity regulatory process, please contact Mr. Dongmin Luo, Manager, Air Quality and Climate Science Section at (916) 324-8496, or by email at dluo@arb.ca.gov.

Sincerely,

David J. Mallory for:

Janette Brooks, Chief
Air Quality Measures Branch
Stationary Source Division

Alberto Ayala

Alberto Ayala, Chief
Climate Change Mitigation & Emissions Branch
Research Division

cc: David Mallory, Manager
Measures Development Section
Air Quality Measures Branch

Dongmin Luo, Manager
Air Quality and Climate Science Section
Climate Change Mitigation & Emissions Branch

Trish Johnson
Measures Development Section
Air Quality Measures Branch

Ralph Propper
Air Quality and Climate Science Section
Climate Change Mitigation & Emissions Branch

Proposed Amendments to Tables of Maximum Incremental Reactivity (MIR) Values

**ARB Public Workshop
August 4, 2009**

California Environmental Protection Agency



Air Resources Board

Current Regulatory Status

- MIRs used for mobile sources & fuels
- Aerosol coatings regulation uses MIRs
- Section 94700: MIR values for ~800 individual VOCs or mixtures
- Section 94701: MIR values for 24 bins of hydrocarbon (HC) solvents

Why Amend MIR Values?

- Last amended in 2003
- Dr. Carter developed new SAPRC-07 mechanism; MIR changes for VOCs
- Hundreds of new VOCs, with MIRs
- Review of bin values for HC solvents
 - New data on solvent compositions
 - Impacts of new MIR values on bin system

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Scientific Reviews

- Research Screening Committee:
 - Approved SAPRC-07 final report
- SAPRC-07 Peer Review:
 - Evaluated by 4 independent scientists
- Reactivity Scientific Advisory Committee (RSAC):
 - Approved SAPRC-07's scientific basis & resulting MIRs

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What's New for SAPRC-07?

- 1500 Experiments; State-of-Science
- Corrections/modifications to mechanisms
- Distinct VOC mechanisms: 21% additional
- Additions/changes:
 - Aromatic mechanisms
 - Chlorine chemistry
 - Particulate Matter (PM) prediction

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What's New for MIRs?

- Updated mechanism used (scenarios & methodology: same as for SAPRC-99)
- ~300 more VOCs & mixtures of interest
- MIRs calculated for >1100 VOCs
 - >700 VOCs represented explicitly
 - >300 VOCs represented by “Lumped Molecule” method
 - >50 mixtures

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Changes in MIR Values

- Overall, MIRs are Lower: 12 - 13%
 - MIR for Base VOC Mixture: ~ – 5%
 - Average Change, Relative MIRs: ~ – 7%
- 94% of VOCs: MIR change < 30%

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Largest MIR Changes

<u>Compound</u>	<u>MIR: Now</u>	<u>New</u>
3-methoxy-1-butanol	0.97	3.75
2-amino-2-methyl-1-propanol	4.75	-2.57*
2-(chloromethyl)-3-chloropropene	3.13	6.85
1,2-dibromoethane	0.046	0.098
1,2-dichloroethane	0.098	0.21
<i>trans</i> -1,2-dichloroethene	0.81	1.65

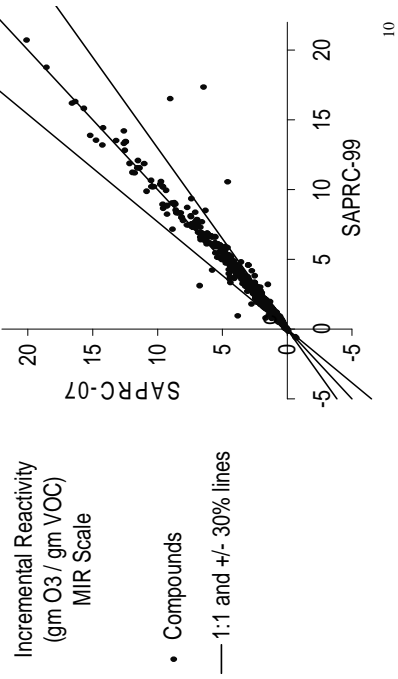
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MIR Changes by Class

<u>Chemical Class</u>	<u>Avg MIR Change</u>
Alkanes	-14 ± 6%
Alkenes	-5 ± 9%
Aromatics	1 ± 16%
Aldehydes	-5 ± 8%
Ketones	-12 ± 13%

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Changes in MIR Scale



Hydrocarbon (HC) Solvent Bins

- Developed for complex mixtures
- 20 Bins for alkanes (n-, iso-, & cyclo-alkanes)
- 4 Bins for aromatics
- Current bin method:
 - % of n-, iso-, & cyclo-alkanes, aromatics
 - Mean of boiling ranges
 - SAPRC-99 MIR vs. boiling point correlations for each class fraction

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Carter Bin Estimation Method

- Use species composition data for solvents (previously confidential)
- Then use the component MIRs:
 - Boiling Range
 - HC class & carbon #
- Assumptions:
 - Alkane class fractions equally distributed
 - Compositions depend only on carbon #

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Carter Bin Estimation Method - 2

- MIRs evaluated for >100 solvents with composition data
- Bin composition assignments used to update bin MIRs to SAPRC-07
- Change in method:
 - MIRs decrease more for light solvents with cycloalkane content
- Change in mechanism:
 - MIRs for alkane bins (1-20) decrease ~14% (avg)

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HC Bin MIRs: 2000 - 2009

Boiling Point (°F)	80-205		>205-340		>340-460		>460-580					
	Bin	2000	2009	Bin	2000	2009	Bin	2000	2009			
MIRs												
Alkanes	1	2.08	1.33	6	1.41	1.08	11	0.91	0.63	16	0.57	0.47
n- & iso-Alkanes	2	1.59	1.23	7	1.17	0.95	12	0.81	0.55	17	0.51	0.43
cyclo-Alkanes	3	2.52	1.53	8	1.65	1.34	13	1.01	0.79	18	0.63	0.54
Alkanes: <8% arom.	4	2.24	1.37	9	1.62	1.35	14	1.21	0.91	19	0.88	0.61
Alkanes: 8-22% arom.	5	2.56	1.47	10	2.03	1.88	15	1.82	1.48	20	1.49	0.89
Boiling Point (°F)	280-290		320-350		355-420		450-535					
MIRs												
Pure Aromatic	21	7.37	7.44	22	7.51	7.39	23	8.07	6.66	24	5.00	3.76

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Timeline

- RSAC approved SAPRC-07 mechanism & MIR values: March 25, 2009
- Proposed amendments to tables of MIR values, including HC solvent bins
 - ARB Workshop: August 4, 2009
 - Staff Report: September 17, 2009
 - Exec. Officer (EO) Hearing: November 3, 2009

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We Request Your Help!

- Economic Assessment for Staff Report
 - Cost/Benefit to California Businesses
 - Due August 11
- Missing Chemicals for MIR List?
 - Due today
- Smog Chamber Tests for any VOCs?
 - Due today

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Contact Information

Ralph Propper, Lead
Regulatory Amendments
(916) 323-1535
rpropper@arb.ca.gov

Dongmin Luo, Manager
Air Quality & Climate Science Section
(916) 324-8496
dluo@arb.ca.gov

Reactivity Program Website
www.arb.ca.gov/research/reactivity/reactivity.htm