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VOC140306791

Category: 14 – Cutback Asphalt

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

DATE: MAR 6, 1979

SUBJECT: Cutback Asphalt VOC Regulations

FROM: Richard G. Rhoads, Director
Control Programs Development Division, OAQPS (MD 15)

TO: Director, Air & Hazardous Materials Division, Regions I-X

On December 19, 1978 a memorandum containing an example regulation for controlling cutback asphalt was sent to each of you. That memorandum was prompted by misunderstandings of the complicated issue of cutback asphalt; specifically, what exemptions are allowed and what is an appropriate transition period from cutback to emulsified asphalt. The memorandum contained information based on contacts with emulsified asphalt manufacturers and users and with representatives of the Asphalt Institute.

Attached is a summary of the draft regulations which were submitted to CPDD prior to the December 19 memorandum. Even though the summarized regulations were only drafts and have likely been revised, I feel it worthwhile to point out the significant problems found during the review of the regulations. An explanation of these problems is also attached.

The December 19 memorandum indicated that liquid emulsified asphalt can be stored only up to four weeks in heated or insulated containers. Information received since the memorandum was sent indicates that this is an error; liquid emulsified asphalt apparently can be stored for much longer periods of time. This error, however is only minor since it is still true that an emulsified asphalt patch mix (mixture of aggregate and liquid asphalt) cannot be stockpiled. Manufacturers, however, are working on this problem and are trying to develop such an emulsion. If solvent is added to the emulsion, long life stockpiling can be achieved, but our definition of emulsified asphalt does not include emulsions containing solvents.

The December 19 memorandum also indicated that more detailed information for calculating emission rates from cutback asphalt will be sent to the Regional Offices. At the present time an EPA contracted study of emission rates from cutback asphalt is being reviewed by the Asphalt Institute. The results of that review will be considered when the review is completed in late March or early April. At that time a decision will be made on the need for further study of cutback asphalt emission rates. For the present, however, in developing control strategies for ozone and preparing emission inventories for the 1979 SIP revisions, States should use the evaporation rates contained in the control techniques guideline. These rates are 80% for rapid cure, 70% for

medium cure, and 25% for slow cure (except as discussed below). These rates should be used in conjunction with solvent content values for the various cutbacks used in the State. Solvent content values can be obtained from the cutback manufacturers. If new emission rates are established at a later date, they will be available for the next round of SIP revisions.

The fourth exemption in the example regulation sent December 19 allowed the user of any cutback for which the user can demonstrate that no emissions will occur under conditions of normal use. Until further studies are done on cutback emission factors, that demonstration should be done as follows:

1. Obtain distillation data for the cutback from the manufacturer or run a distillation test. (ASTM Method D-402, Distillation of Cutback Asphalt Products.)

2. If less than 5% of the total solvent has evaporated up to and including 500 degrees F, the cutback will be considered one that has no VOC emissions under field conditions.

We realize that distillation tests cannot be directly related to field conditions, however, we feel that any emissions from a cutback passing the above test will be very minor. Also, for purposes of calculating emissions for control strategies or emissions offsets, cutbacks passing the test should be considered as having no VOC emissions.

The December 19 memorandum indicated that there might be other unique problems for which exemptions could be appropriate under a case-by-case RACT determination. I would like to stress that if a State requests an exemption to use cutback or an emulsified asphalt containing solvent for any application other than those accepted in the example regulation, it is up to the State to demonstrate that an emulsified asphalt (containing no solvent) cannot be used. The demonstration must contain evidence that the State has contacted emulsified asphalt manufacturers and emulsifying chemical manufacturers, and that the manufacturers cannot develop an acceptable emulsion or cannot recommend an acceptable alternative paving or repair procedure. As stated in the December 19 memorandum, please advise me of any additional requests for exemptions.

Attachments

Attachment 1

SUMMARY OF DRAFT VOC REGS. FOR CUTBACK ASPHALT

| STATE | COMP- LIANCE DATE | EXEMPTIONS | | | | | SIZE CUT- OFF | STATEWIDE / | COMMENTS |
|-------|-------------------------|------------|-----------|--------|----------|--------|------------------------|----------------|---|
| | | /PRIME | /SEASONAL | /TEMP. | /STORAGE | /OTHER | | | |
| I | | | | | | | | | |
| Mass. | 7/1/80 | X | 1 | - | - | - | PE>=100 | X | 1. 10/30-5/1 for patching. |
| NH | | - | - | - | - | - | | X | Total Prohibition for paving of roads, highways, or driveways. N.H. has no urbanized areas. |
| II | | | | | | | | | |
| NY | | X | 1 | - | X | 2 | | X | 1. 10/16-5/1 2. Emulsified asphalt containing less than 15% by weight VOC. |
| III | | | | | | | | | |
| VA | 1 | X | - | X | X | - | >7 TPY | 2 | 1. 60 days after board adoption or 9 months after promulgation of new O3 standard. 2. At a minimum, the non-attainment areas; may be adopted Statewide. |
| WVA | | X | X | - | X | - | | ? | All cutback asphalt users and manufacturers must register with the Commission within 30 days from the effective date of the regulation. After the effective date of the regulation, permits are required for anyone commencing operations subject to this regulation. |
| MD | 1/1/79 | X | - | X | X | - | | 1 | 1. Applies to the Baltimore Metropolitan Area. There are two other nonurban non-attainment areas in MD. |
| DEL | 12/31/80 | - | - | 1 | - | | >10 lbs/day or 3lbs/hr | X | 1. Only for emergency repair of potholes and/or filling cracks in highway pavement. As technology becomes available all uses of cutback asphalt will be discontinued. |

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|-------------------------------|-------------------------|------------|-----------|--------|----------|--------|--|----------------|---|
| | | /PRIME | /SEASONAL | /TEMP. | /STORAGE | /OTHER | | | |
| PA | not given | X | - | X | X | 1 | | X | 1. Dust palliative tack coat, pre-coating of aggregate and protective coating for concrete. |
| IV KY (Louis- ville) | eff. date of reg. | - | 2 | - | - | 1 | | 3 | 1. Exempts asphalt with less than or equal to 10% by weight VOC. 2. Jan-Apr. for repair of potholes or other damage to roadways. 3. Louisville, Kentucky. |
| NC | 10/1/80 | X | - | X | X | - | >15 lbs/day or 3 lbs/hr >100 TPY for att. areas | X | |
| SC | 5/1/81 | - | - | - | - | - | 1 | X | 1. In urban areas, stationary sources with potential emissions greater than 10 TPY; non-urban areas greater than 100 TPY. |
| TN | 2/1/81 | - | - | - | - | 1 | | ? | 1. Total prohibition in urban counties. Use allowed in a rural co. with the approval of the director. |
| V IL | 12/31/80 | X | 1 | X | - | - | | X | 1. 10/1-4/30. |
| IND | 1/82 | X | - | X | X | - | ? | ? | |
| OH | | X | - | X | X | 1 | >15 lbs/day or 3 lbs/hr | ? | 1. Other than road paving, i.e., roofing or waterproofing. |
| MICH | not given | X | 1 | X | X | - | | X | 1. 10/1-4/30 |
| WISC | 7/1/79 | X | 1 | X | 2 | - | | - | 1. non-ozone season 11/1-4/30 2. must be stored for 2 years or longer. |

| STATE | COMP-LIANCE DATE | EXEMPTIONS | | | | | SIZE CUT-OFF | STATEWIDE / | COMMENTS |
|----------------------------|--------------------------------|------------|-----------|--------|----------|--------|--------------|-------------|---|
| | | /PRIME | /SEASONAL | /TEMP. | /STORAGE | /OTHER | | | |
| VI ARK | 7/21/79 | X | - | X | X | - | | X | |
| OK | 24 mo. after eff. date of reg. | - | - | - | - | 1 | | X | 1. Consent of the Commissioner |
| TX | 12/31/80 | - | - | - | - | - | | X | 1. 7 nonattainment areas. Use of cutback asphalt for paving is restricted to no more than 7% of the total annual volume of asphalt used or specified for use by any State, municipal, or county agency. All nonattainment areas are not covered. |
| VIII CO | not given | - | - | 1 | X | 2 | | X | 1. Also allows exemptions when precipitation is anticipated within 3 hrs. from time of application. 2. Other conditions as approved by the Division. Div. may require invoices or other records to verify use of cutback and emulsified asphalt. |
| X WASH (Puget Sound) | 6/1/80 | 1 | 2 | - | 3 | 4 | | - | 1. Use of MC only. 2. Oct.-May. 3. Use of MC only. 4. SC Reg. applies to Puget Sound nonattainment area. |
| WASH STATE | 6/1/80 | 1 | 3 | 1,1 | - | 4 | | 2 | 1. Allowed provided diluent has a total vapor pressure of less than 26 mm Hg at 20 degrees C. 2. Nonattainment areas. 3. Oct.-May. 4. Forecast for 24 hr. period following application is less than 50 degrees F. Report required on use of cutback asphalt during June-Sept. |

| STATE | COMP- LIANCE DATE | EXEMPTIONS | | | | | SIZE CUT- OFF | STATEWIDE / | COMMENTS |
|-------|-------------------------|------------|-----------|--------|----------|--------|---------------------|--|----------|
| | | /PRIME | /SEASONAL | /TEMP. | /STORAGE | /OTHER | | | |
| ORE | 4/1/79 | 1 | ? | - | 1 | - | 2 | 1. MC only. 2. Nonattainment areas. | |

Attachment 2

EXAMPLE REGULATION OF DECEMBER 19, 1978

1. Twelve regulations contain an exemption allowing the use of cutback asphalt when the temperature is below 50 degrees F. It is preferable for enforcement purposes to establish a season during which cutback asphalt may be used. The season would represent that portion of the year during which temperatures do not linger above 50 degrees F for periods of time adequate for emulsified asphalt application and setting.

2. Several States specify a 100 TPY cutoff size. No criteria is provided for defining a 100 TPY source with respect to cutback asphalt. Our guidance defines cutback asphalt as an area source and any "100 Ton" calculations should consider all State, local, and private uses of asphalt in the area for which the control strategy demonstration is developed.

3. None of the 24 draft regulations prohibit the use of emulsified asphalt containing solvent. Our definition of emulsified asphalt includes only solvent-free emulsions.

4. Eight States exempt cutback asphalt from regulation for situations other than the three prescribed in our guidance. These exemptions in the draft regulations are unacceptable although there will be case-by-case situations where other exemptions could be allowed.