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Materials & Research Dept.

Pollution Requirements for Cut-Back Liquid Asphalt

by John L. Beaton*

Recently the cut-back liquid grade asphalts used by the California Division of Highways have come under an additional requirement so as to minimize their contribution to air pollution. In our January 1969 standards the following requirements were included:

> 7-1.01K Air Pollution - The Contractor shall comply with all air pollution control rules and regulations which apply to any work performed on the contract.
>
> Whenever work is performed which is not within the jurisdiction of an air pollution control district, all solvents including but not limited to the solvent portions of paints, thinners and liquid asphalts used on the project, shall comply with the applicable material requirements of the Los Angeles County Air Pollution Control District. All containers of paint thinner or solvent shall be labeled to indicate that the contents fully comply with said requirements.

Solvent requirements set by the Los Angeles County Air Pollution Control District come under their solvent control Regulation Rule 66 which was adopted by them in July 1966.

The highlights of this law that pertain to the solvents used in cut-back liquid asphalts are:

A. Allowable losses.

Where photochemically reactive organic solvents are used in machines or equipment strictly for applying evaporating or drying purposes, the evaporation limit is 40 lbs. in any one day.

B. Photochemically Reactive Solvents:

A solvent is photochemically reactive if it exceeds the following limitations:

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The greatest use of the MC-250 was for curing seals, with the MC-800 mainly used for stockpile mix. A large portion of the RC-70 was used for fog seals.

Control for compliance with pollution requirements is not at present being performed by the California Division of Highways laboratories in that we feel this to be the joint responsibility of industry and the air pollution agencies.

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Table A

California Division of Highways

Asphalt Tonnage

Year	M.C. Cut-backs Tons MC 70	MC 250	MC 800	MC 3000	Total All Grades	% Total Asphalt Tonnage	R.C. Cut-backs Tons RC 70	RC 250	RC 800	RC 3000	Total All Grades	% Total Asphalt Tonnage	Total Asphalt Tonnage All Asphalt Products
1965	980	12,713	5,553	99	19,273	5.22	1,244	339	442	134	2,159	.58	369,097
1966	1,119	14,343	6,315	12	21,789	4.86	890	572	172	22	1,656	.37	448,647
1967	1,513	12,938	5,282	139	19,872	4.50	957	119	219		1,295	.29	441,130
1968	1,318	15,800	4,487	51	21,656	4.83	934	239	29		1,202	.27	448,567
1969	1,111	16,699	6,007	65	23,882	4.89	1,634	124	182		1,940	.40	488,874

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Chemicals	Maximum amount permitted in solvent % Volume
1. A combination of hydrocarbons, alcohols, aldehydes, esters or ketones with olefinic or cyclolefinic type of unsaturation:	5
2. A combination of aromatic compounds with 8 or more carbon atoms to the molecule except ethylbenzene:	8
3. A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene:	20

In general, the cut-back liquid grade asphalts used on any project would lose more than 40 lbs. of solvent in any one day and, therefore, the cut-back solvents must conform to the solvent requirements shown in B.

As noted in our air pollution requirements, the materials must meet the regulations of each air pollution control district. The two most active air pollution control districts in California are the Los Angeles Air Pollution Control District and the Bay Area Air Pollution Control District. The solvent requirements set forth in both districts are similar.

During the 1970 legislative session, Assembly Bill 83 was passed requiring each county to organize into a pollution control district. This could further complicate the problems of compliance by the manufacturer if regulations differ among the various districts, however, it appears at present, that the most restrictive will be that of Los Angeles as outlined above.

Producers have indicated that supplying cut-backs that meet the Los Angeles regulations increased the cost by about $4 per ton.

In California, since 1965, the use of cut-back liquid asphalt by the Division has remained quite uniform. This is illustrated in Table A which shows the tonnage figures for the cut-back products. The predominant cut-back material which has been used during the past five years is MC-250. A large quantity of MC-800 has also been used. In comparison, the RC products are used very little, only the RC-70 is being used with any regularity.

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