ENVIRONMENTAL ASSESSMENT

1. **January 24, 2005**

2. **Eastman Chemical Company**

3. **Eastman Chemical Company**
   100 North Eastman Road, B-54D
   Kingsport, TN 37660

4. **Description of the Proposed Action**

   a. Requested action

   This notification is for the use of hydrogenated aromatic hydrocarbon resins as components of pressure-sensitive adhesives used as the food-contact surface of labels or tapes. As specified under 21 CFR 175.125 (Pressure-sensitive adhesives), the labels and tapes are intended to contact poultry, dry food, processed, frozen, dried, or partially dehydrated fruits and vegetables, raw fruits, and raw vegetables. The tapes and labels will be used at room temperature or below. This substance is added at a maximum level of 47.5% by weight to the adhesives, although typical use will be about 40%.

   b. Need for action

   The use of the FCS in the pressure-sensitive adhesive formulation has the following desirable, intended technical effects on overall performance of the pressure-sensitive adhesive and the labels and tapes:

   - The resins increase adhesion performance;
   - The resins permit lower coating temperatures and reduced mixing time;
   - The resins have a low viscosity, thus they allow high formulations flexibility;
   - The resins improve die-cutting performance; the use of the resin makes the adhesive less elastic, resulting in a cleaner cut and less elongation during the die-cutting of the label; and
   - The resins are suitable for formulating adhesives for a wide range of applications.

c. Location of use/disposal

The FCS will be incorporated into adhesives that are then used in the production of commercial pressure-sensitive labels and tapes, and remain with the labels and tapes through use and disposal. The manufacturing sites of the adhesives and the labels and tapes are expected to be widely distributed throughout the United States. Disposal of the labels and tapes containing the FCS is expected to occur nationwide with the materials ultimately being deposited in municipal solid waste landfills or combusted.

5. Identification of substances that are the subject of the proposed action

a. Chemical Abstracts Service (CAS) name

Distillates, petroleum, heavy thermal cracked, polymerized hydrogenated

b. CAS Registry Number

88526-47-0

c. Trade or Common Name

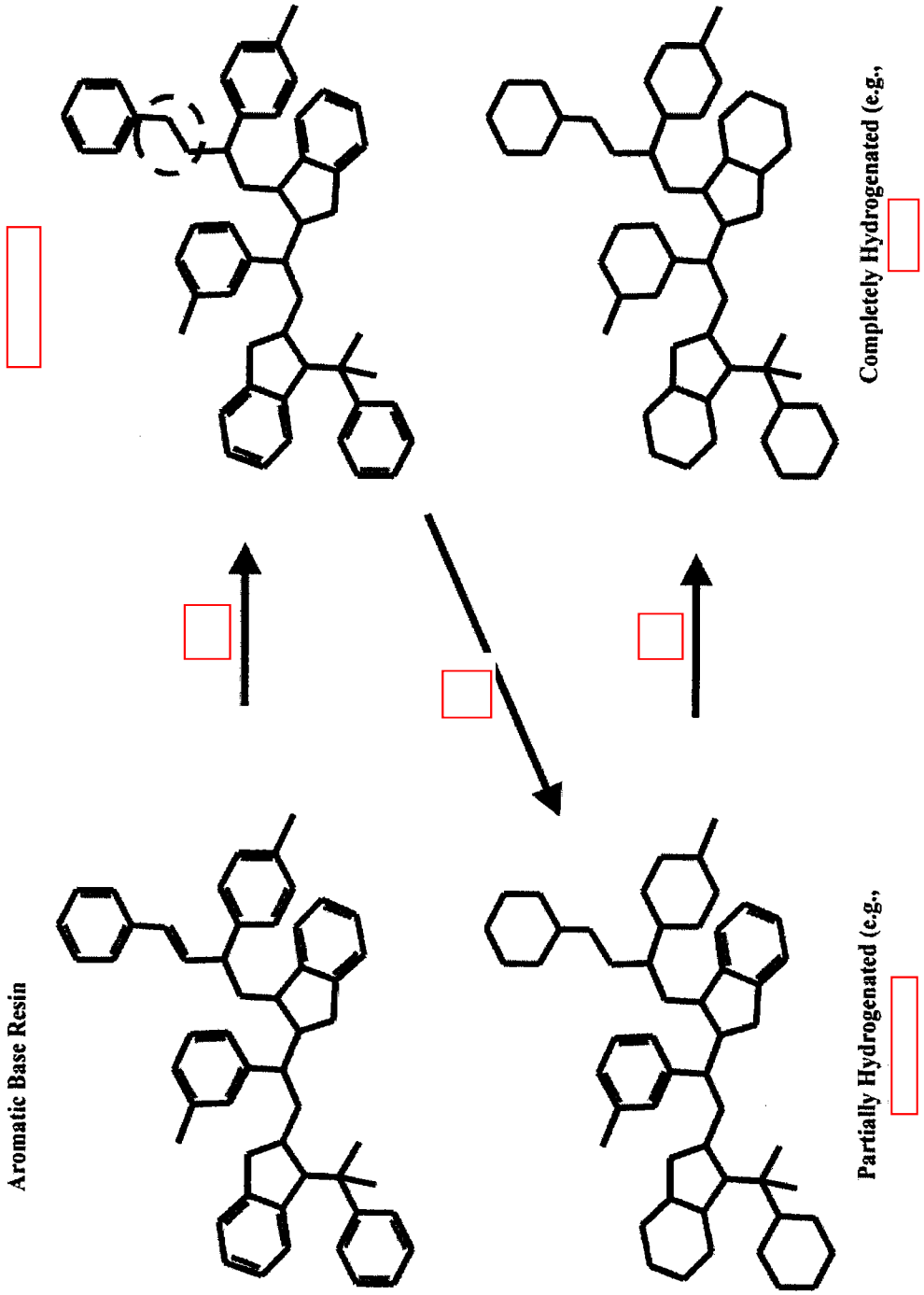
d. Other Chemical Names

Naphtha, petroleum, light steam-cracked, debenzenized, polymers, hydrogenated-; hydrogenated hydrocarbon resin; aromatic petroleum hydrocarbon resin, hydrogenated

e. Empirical Formula

$C_{53}H_{80\text{-}93}$ (approximation, calculated from representative elemental compositions)

f. Structural Formulae



g. Properties

Summary of Physical & Chemical Properties

Product	Appear-ance	Density @25°C	Softening Point (°C)	MMAP (Cloud Point) (°C)	UV Absorbance at 268 nm	Percent Aromatic H by NMR	Color Gardner (50 % resin in toluene)	Heat Stability (determined from Color Gardner)	Glass Transition Temperatures Average Values (°C)				Melt Viscosity (cps)
									Onset	Mid-point	Inflection Point	End-point	
						UV + 0.7012 / 0.215		(20 g at 177°C for 24 h)					Brookfield 160°C

6. Introduction of Substances into the Environment

a. Introduction of substances into the environment as a result of manufacture

To the best of our knowledge, no extraordinary circumstances pertain to the manufacture of the FCS.

b. Introduction of substances into the environment as a result of use

The FCS is almost completely incorporated into the adhesive and functions in finished labels and tapes, and essentially all of it is expected to remain with labels and tapes throughout their use. As such, little or no substances are expected to be introduced into the environment from the use of the FCS in the manufacture of adhesives that are then used in the production of commercial pressure-sensitive labels and tapes.

c. Introduction of substances into the environment as a result of disposal

Based on the migration studies carried out on a related resin that were performed to demonstrate the safety of this FCS, we expect only very low levels of substances to leach from the labels and tapes into landfills. Moreover, even if very small amounts of substances migrate from the labels and tapes into landfills, we expect only extremely low quantities to enter the environment. This finding is based on the regulations of the environmental Protection Agency (EPA), governing municipal solid waste landfills, i.e., 40 CFR Part 258. With regard to combustion, the EPA reports that the amount of MSW generated in the United States in the year 2001 was 229.2 million tons. After materials recovery, the total amount of MSW disposed of in 2000 was 161.2 million tons. Of this amount, 33.6 million tons was combusted.[1] The FCS is composed of carbon and hydrogen, elements commonly found in municipal solid waste (MSW). The complete combustion of the FCS will produce carbon dioxide and water. Because the market volume of the FCS (See Confidential Attachment to the Environmental Assessment) to make label and tapes is a small fraction of the total MSW generated and disposed of in the United States and because the FCS will replace and compete with similar materials (see Format Item 9), adding the labels and tapes to waste that is combusted will not alter significantly the emissions from municipal waste combustors. Because of the low levels of combustion products compared to the amounts currently generated by municipal waste combustors, we do not expect that the combustion of

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(1) EPA, 2003, *Municipal Solid Waste in the United States: 2001 Facts and Figures*, EPA530-S-03-001, United States Environmental Protection Agency (5305W), Washington DC, 20460, October 2003.

labels and tapes will cause municipal waste combustors to threaten a violation of applicable emissions laws and regulations, i.e. EPA's regulations in 40 CFR Parts 60 and 62[2] and local government air emission regulations.

7. Fate of the Emitted Substance into the Environment

No information need be provided on the fate of substances released into the environment as a result of use and disposal of the labels and tapes in landfills and by combustion, because, as discussed under Format Item 6 above, only very small quantities, if any, of substances will be introduced into the environment. Therefore, the use and disposal of the labels and tapes in landfills or by combustion are not expected to threaten a violation of applicable laws and regulations, e.g., the Environmental Protection Agency's regulations in 40 CRF Parts 60 and 258.[2]

8. Environmental Effects of the Released Substance

No information need be provided on the environmental effects of substances released into the environment as a result of the use and disposal of the labels and tapes in landfills and by combustion, because, as discussed under Format Item 6 above, only very small quantities of substances, if any, are expected to be introduced into the environment. Therefore, the use and disposal of the labels and tapes in landfills or by combustion are not expected to threaten a violation of applicable laws and regulations, e.g., the Environmental Protection Agency's regulations in 40 CFR Parts 60 and 258.[2]

9. Use of Resources and Energy

Resources and energy utilization to produce or dispose of the FCS or labels and tapes containing the FCS are not expected to be affected by the action. Overall US production of pressure-sensitive adhesives is expected to remain essentially unchanged as a consequence of this action because the FCS is intended to compete with and replace other products already in use in the manufacture of these adhesives that are subsequently used in the production of pressure-sensitive labels and tapes. [redacted], manufactured by the Goodyear Tire and Rubber Company, are products already approved for use under 21CFR Part 175.125, *Pressure-sensitive adhesives*, that would be replaced by the use of the FCS. Consequently, there is essentially no effect on the use of natural resources and energy.

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[2] Title 40--Protection Of Environment, Chapter I--Environmental Protection Agency:
Part 60--Standards of Performance for New Stationary Sources;
Part 62--Approval and Promulgation of State Plans for Designated Facilities and Pollutants
Part 258--Criteria for Municipal Solid Waste Landfills

10. Mitigation Measures

Mitigation measures for the proposed action need not be considered because no potentially adverse effects have been identified.

11. Alternatives to the Proposed Action

Alternatives to the proposed action need not be considered because no potential adverse effects have been identified.

12. List of Preparers

Susan D. Phillips, Manager at The ENVIRON Health Sciences Institute (EHSI). M.S. in Pharmacology and Toxicology. Consultant in chemical, toxicological, and pharmacological sciences.

The Center for Food Safety and Applied Nutrition of the FDA was consulted concerning the content of this Environmental Assessment.

13. Certification

The undersigned official certifies that the information presented is true, accurate and complete to the best of the knowledge of Eastman Chemical Company.

_____ 01/24/05

Signature of Responsible Official Date

Susan Phillips, Agent for Eastman Chemical Company

Name and Title of Responsible Official (Printed)

14. References

Complete citations for all information referenced in the EA are in footnotes within the EA.

15. Attachments

One confidential attachment is present.