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REGULAR GRADE AND BISPHENOL A -					
E. R. GRADE WITH COVER LETTER					
Chemical Name (300 per name)	25		CAS No. (10)	24	
BISPHENOL A			80-05-7		

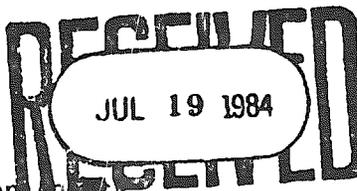
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THE DOW CHEMICAL COMPANY

BARSTOW BUILDING  
2020 DOW CENTER  
MIDLAND, MICHIGAN 48640

July 19, 1984



Environmental Protection Agency  
Document Control Officer  
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SUBMISSION OF HEALTH AND SAFETY STUDIES

In accord with 40 CFR 716, we are submitting copies of reports of eleven health and safety studies on bisphenol A (CAS No. 80-05-7) and isopropyl biphenyl (CAS No. 25640-782) as required by rule, effective June 28, 1984.

The reports are in two separate packages. The report in Package 1 contains confidential business information. Package 2 contains a copy of the same report from which confidential business information has been removed. It also contains copies of other reports which include no confidential business information.

Some of the reports contain information which has no relevance to the health or safety effects of the listed chemicals. Examples of this kind of information are marketing data, organization account numbers, internal document identification codes and mail distribution lists. That kind of information has been removed from the submitted copies of the reports.

The index required by 40 CFR 716.6(b) is enclosed. It lists the Dow Item Number, e.g. D-1310, and the title of each report submitted. The corresponding Dow Item Number is also listed at the top of the first page of each copy of the reports. Please refer to the Dow Item Number in any communication regarding a study.

Very truly yours,

L. Hampton  
Research Associate  
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eb

Enclosures

1C

RECEIVED  
Biochemical Research Laboratory  
The Dow Chemical Company

D-001311

878214494

RESULTS OF RANGE FINDING TOXICOLOGICAL  
TESTS ON BISPHENOL A - REGULAR GRADE AND  
BISPHENOL A - E. R. GRADE

File

K No.

Chg.

Rept. By K. J. Olson

Signed

K. J. Olson

Checked

J. M. Collier

Date

Sept. 4, 1957

Date

Sept. 6, 1957

### PROBLEM

Production personnel involved in bagging this material have experienced a frequency of skin rash. The two subject materials have been submitted for toxicological evaluation from the standpoint of skin contact irritation. Are there any problems or hazards incidental to the industrial handling or use of these materials?

### CONCLUSIONS

Both materials have low acute oral toxicities and should present no problem from ingestion incidental to industrial use or handling.

The E. R. Grade appears to be more irritating to the eye than the regular grade. Direct contact with the regular grade can be expected to produce slight pain and conjunctivitis which should persist for no longer than an hour or two. The E. R. Grade, on the other hand, may produce swelling of the conjunctiva and corneal

(Continued)

000002

<p>EYE CONTACT</p>	<p><input checked="" type="checkbox"/> If the eyes are contaminated, they should be flushed immediately with copious amounts of flowing water for at least 15 minutes.</p> <p><input checked="" type="checkbox"/> Medical attention should be obtained if irritation persists or develops after washing of the eyes.</p> <p><input type="checkbox"/> Medical attention should be obtained.</p> <p><input type="checkbox"/> MEDICAL ATTENTION SHOULD THEN BE OBTAINED WITHOUT DELAY.</p>
<p>SKIN CONTACT</p>	<p><input checked="" type="checkbox"/> Any injuries or irritations which may develop should receive medical attention.</p> <p><input checked="" type="checkbox"/> Contaminated clothing and shoes should be removed and not re-used until thoroughly cleaned.</p> <p><input type="checkbox"/> Wash contaminated skin with soap and plenty of water.</p> <p><input type="checkbox"/> Contaminated clothing, including shoes, should be removed and the affected skin area should be washed thoroughly with soap and plenty of water.</p> <p><input type="checkbox"/> Medical attention should then be obtained.</p> <p><input type="checkbox"/> Contaminated clothing and shoes should not be re-used until thoroughly cleaned.</p> <p><input type="checkbox"/> All contaminated clothing, including shoes, <u>must</u> be removed immediately and the affected skin area flushed thoroughly with water from a safety shower, or other suitable device and cleansed with soap and plenty of water.</p> <p><input type="checkbox"/> MEDICAL ATTENTION MUST THEN BE OBTAINED AS RAPIDLY AS POSSIBLE.</p> <p><input type="checkbox"/> Contaminated clothing including shoes, must not be re-used until thoroughly cleaned or must be discarded.</p>
<p>INHALATION</p>	<p><input type="checkbox"/> If a person should experience any noticeable ill effects from breathing the vapor or fumes of this material, medical attention should be obtained promptly.</p> <p><input type="checkbox"/> If a person should be overcome from breathing this material, he should be removed to fresh air at once, be made to rest, kept warm, and MEDICAL ATTENTION SHOULD BE OBTAINED IMMEDIATELY. If breathing stops, artificial respiration should be administered.</p>
<p>INGESTION</p>	<p><input type="checkbox"/> If appreciable amounts of material are swallowed, vomiting should be induced by tickling the back of the tongue with the finger or by giving an emetic such as 2 tablespoonfuls of table salt in a glass of warm water. Medical attention should then be obtained.</p> <p><input type="checkbox"/> If the material is swallowed, vomiting must be induced by tickling the back of the tongue with the finger or by giving an emetic such as 2 tablespoonfuls of table salt in a glass of warm water. MEDICAL ATTENTION SHOULD THEN BE OBTAINED WITHOUT DELAY</p>

COMMENTS:

000003

EYE CONTACT	<input checked="" type="checkbox"/> If the eyes are contaminated, they should be flushed immediately with copious amounts of flowing water for at least 15 minutes. <input type="checkbox"/> Medical attention should be obtained if irritation persists or develops after washing of the eyes. <input checked="" type="checkbox"/> Medical attention should be obtained. <input type="checkbox"/> MEDICAL ATTENTION SHOULD THEN BE OBTAINED WITHOUT DELAY.
SKIN CONTACT	<input checked="" type="checkbox"/> Any injuries or irritations which may develop should receive medical attention. <input checked="" type="checkbox"/> Contaminated clothing and shoes should be removed and not re-used until thoroughly cleaned. <input type="checkbox"/> Wash contaminated skin with soap and plenty of water. <input type="checkbox"/> Contaminated clothing, including shoes, should be removed and the affected skin area should be washed thoroughly with soap and plenty of water. <input type="checkbox"/> Medical attention should then be obtained. <input type="checkbox"/> Contaminated clothing and shoes should not be re-used until thoroughly cleaned. <input type="checkbox"/> All contaminated clothing, including shoes, <u>must</u> be removed immediately and the affected skin area flushed thoroughly with water from a safety shower, or other suitable device and cleansed with soap and plenty of water. <input type="checkbox"/> MEDICAL ATTENTION MUST THEN BE OBTAINED AS RAPIDLY AS POSSIBLE. <input type="checkbox"/> Contaminated clothing including shoes, must not be re-used until thoroughly cleaned or must be discarded.
INHALATION	<input type="checkbox"/> If a person should experience any noticeable ill effects from breathing the vapor or fumes of this material, medical attention should be obtained promptly. <input type="checkbox"/> If a person should be overcome from breathing this material, he should be removed to fresh air at once, be made to rest, kept warm, and MEDICAL ATTENTION SHOULD BE OBTAINED IMMEDIATELY. If breathing stops, artificial respiration should be administered.
INGESTION	<input type="checkbox"/> If appreciable amounts of material are swallowed, vomiting should be induced by tickling the back of the tongue with the finger or by giving an emetic such as 2 tablespoonfuls of table salt in a glass of warm water. Medical attention should then be obtained. <input type="checkbox"/> If the material is swallowed, vomiting must be induced by tickling the back of the tongue with the finger or by giving an emetic such as 2 tablespoonfuls of table salt in a glass of warm water. MEDICAL ATTENTION SHOULD THEN BE OBTAINED WITHOUT DELAY

COMMENTS:

000004

CONCLUSIONS (CONTINUED)

damage sufficient to cause loss of time from work. Moderate conjunctivitis, corneal damage and slight iritis may persist for several days. Symptoms should subside within a week. Minimal eye protection should be satisfactory for handling the regular grade but safety glasses with side shields should be used for the E. R. Grade. The 10% aqueous suspensions are only very slightly irritating to the eye. Minimal eye protection should be worn simply to avoid any discomfort which might result from direct eye contact.

Range finding tests indicate that the undiluted regular grade material and the 10% aqueous solution are only slightly irritating to intact and abraded skin. Prolonged continued contact for several days should produce no more than a slight skin irritation. Direct confined contact for a week or more can be expected to produce a slight to moderate irritation and swelling. Ordinary care and cleanliness should provide adequate precaution for handling the regular grade material. The E. R. Grade, both undiluted and as the 10% aqueous suspension, are essentially non-irritating to intact and abraded skin. Ordinary care and cleanliness should be satisfactory for the routine handling of this material.

There is no indication from range finding toxicological tests that personnel handling this material should experience skin

(Continued)

000005

CONCLUSIONS (CONTINUED)

rash if the suggested handling precautions are practiced. There is the possibility that personnel might become sensitized to this material over a long period of contact and then react under certain conditions of direct skin exposure. Skin sensitization experiments have not been conducted by our laboratories.

These conclusions are based upon range finding toxicological tests and are limited to precautions for industrial handling of the material. Development of specific uses will require consideration of the health problems presented and of the need for further toxicological studies.

SAMPLE INFORMATION

C. R. I. Name: P-P'-isopropylidene diphenol

Common Name: Bisphenol A - Regular Grade

Source: George Shayler

Molecular Weight: 228.3

K Number: 1304-6

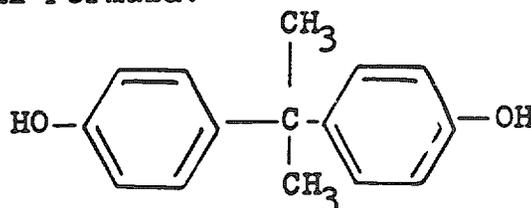
Date Request Received: 4-9-57

Date Sample Received: 4-9-57

Physical State: Solid

Molecular Formula:  $C_{15}H_{16}O_2$

Structural Formula:



SUMMARY OF RANGE FINDING TOXICOLOGICAL DATA

Acute Oral Toxicity

<u>Animal</u>	<u>Preparation Fed</u>	<u>Dose (g./kg.)</u>	<u>No. Died No. Fed</u>	<u>Response-Remarks</u>
Rat	10% solution in corn oil	1.0	0/2	No untoward reaction observed, but extensive kidney and liver damage observed at autopsy.
Rat	10% solution in corn oil	2.0	2/2	

000007

Eye Contact - Rabbit

<u>Material</u>	<u>Treatment</u>	<u>Response-Remarks</u>
Undiluted	Washed and unwashed	Slight pain and conjunctival irritation, subsided in 24 hours.
10% aqueous suspension	Washed and unwashed	Material essentially non-irritating.

Skin Contact - Rabbit

<u>Material</u>	<u>Condition of Skin</u>	<u>No. of Appl.</u>	<u>Site</u>	<u>Response-Remarks</u>
Undiluted	Intact	10	Belly	Essentially no irritation during first week of application. Slight to moderate hyperemia and edema accompanied by slight ex-foliation following the 9th application.
Undiluted	Abraded	3	Belly	Material essentially non-irritating.
10% aqueous suspension	Intact	10	Ear	No irritation observed.
10% aqueous suspension	Intact	10	Belly	Slight hyperemia and moderate edema during second week of application.
10% aqueous suspension	Abraded	3	Belly	Slight hyperemia following first application and continuing for two weeks. Slight edema and scab formation following 4th day of exposure. Healing normal in three weeks.

Skin Absorption

There is no indication, from the skin irritation tests conducted, that this material is absorbed through the skin in toxic amounts.

SAMPLE INFORMATION

C. R. I. Name: P-P' isopropylidene diphenol

Common Name: Bisphenol A - E. R. Grade

Source:

K Number:

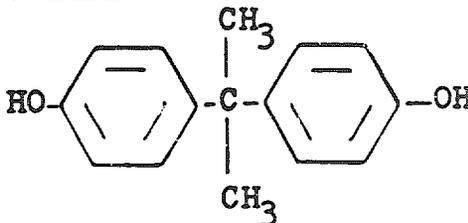
Date Request Received: 4-7-57

Date Sample Received: 4-7-57

Physical State: Solid

Molecular Formula:  $C_{15}H_{16}O_2$

Structural Formula:



SUMMARY OF RANGE FINDING TOXICOLOGICAL DATA

Acute Oral Toxicity

<u>Animal</u>	<u>Preparation Fed</u>	<u>Dose (g./kg.)</u>	<u>No. Died No. Fed</u>	<u>Response-Remarks</u>
Rat	10% solution in corn oil	1.0	0/2	No untoward reactions observed.
Rat	10% solution in corn oil	2.0	2/2	Animals died within two hours.

000009

Eye Contact - Rabbit

<u>Material</u>	<u>Treatment</u>	<u>Response-Remarks</u>
Undiluted	Unwashed	Slight to moderate conjunctivitis accompanied by moderate corneal damage and slight iritis, all of which persisted in excess of 48 hours - healing normal in one week.
Undiluted	Washed with water	Slight to moderate conjunctivitis, essentially subsided in 48 hours.
10% aqueous suspension	Washed and unwashed	Slight pain and very slight conjunctivitis, subsided in 24 hours.

Skin Contact - Rabbit

<u>Material of Skin</u>	<u>Condition</u>	<u>No. of Appl.</u>	<u>Site</u>	<u>Response-Remarks</u>
Undiluted	Intact	10	Belly	Slight hyperemia during application period.
Undiluted	Abraded	3	Belly	No irritation observed.
10% aqueous suspension	Intact	10	Ear	No irritation observed.
10% aqueous suspension	Intact	10	Belly	Same as above.
10% aqueous suspension	Abraded	3	Belly	Slight hyperemia and scab formation following first application - healing normal in one week.

Skin Absorption

There is no indication, from the skin irritation tests conducted, that this material is absorbed through the skin in toxic amounts.

INDEX HEADINGS

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C. R. I. Name: Bisphenol A - Regular Grade

Bisphenol A - E. R. Grade

Common Name: \_\_\_\_\_

DISTRIBUTION