

## Hazard Screening Activity

You have been asked to look for alternative chemicals to Bisphenol A to be used as a developer in thermal receipts. You have found several potential alternatives:

- 1,2-diphenoxyethane - CAS 104-66-5
- N-(p-toluenesulfonyl)-N'-(3-(p-toluenesulfonyloxy)phenyl)urea- CAS 232938-43-1
- Urea Urethane - CAS 321860-75-7
- D8 - CAS 95235-30-6
- Bisphenol S – CAS 80-09-1

You are currently screening them.

So far, 1,2- diphenoxyethane has been screened out for **performance** as it is not actively used as a dye developer in thermal paper, and based on expert opinion should be removed from the list.

You have now been asked to screen the remaining potential alternatives for **hazard** before continuing with the assessment. You will be using the automated GreenScreen List Translator on 3E Exchange. The relevant decision rules from the scoping step are:

- No Carcinogens, Mutagens, Reproductive or Developmental Toxicants and no Endocrine Disruptors (CMRDEs)
- No PBTs

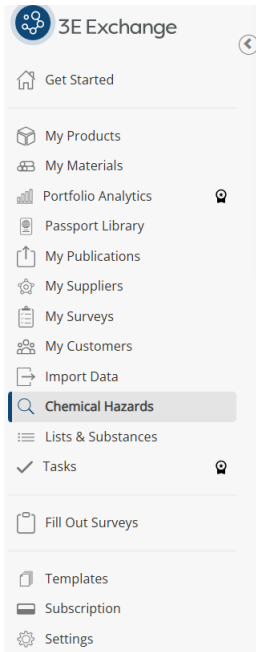
There is also a decision rule for data gaps, but it is not relevant for this step as you are not pulling together all the hazard information for the chemicals in the screening step.

Add the four remaining potential alternatives to a comparison list. If any of the chemicals don't meet the above decision rules, note the hazard characteristic you found and cite the sources to document the justification for why you screened it out.

## How to set up a comparison on 3E Exchange:

Create a free account at 3E Exchange (<https://exchange.3eco.com/>).

Login to your account.



Select the Chemical Hazards Tab.

Add your first chemical CAS where it says “Search by chemical name, RN or EC number...”. And click the magnifying glass icon to search. Your chemical should appear on the list.

View Hazard, Restricted, and Regulatory Lists [here](#).

71-55-6

1 - 1 of 1 result(s)

RN	EC Numbers	Material Name	Hazard Rating
<input checked="" type="checkbox"/> 71-55-6	200-756-3	1,1,1-Trichloroethane	LT - 1

Click the square in the RN column and then click “Add to Comparison”

Since this is the first chemical in your comparison list, you will create a new comparison by selecting “New Comparison”. You can then add a List Name to make your list easier to identify.

Next, add another CAS and click the magnifying glass icon.

### Compare Substances

Search by chemical name or RN.

View Hazard, Restricted, and Regulatory Lists here.

Add to Comparison

1 - 1 of 1 result(s)

RN	EC Numbers	Material Name	Hazard Rating
<input checked="" type="checkbox"/> 75-09-2	200-838-9	Dichloromethane	LT - 1

Click the square in the RN column and then click “Add to Comparison”. Select the comparison you just named.

Continue this process until you have added all the chemicals you want to add.

You can find an Example list [here](#) which is shown in the slide deck.

You can find your comparisons at any time by going to [Design Tools](#) and selecting Substance Comparisons.

With the decisions rules mentioned in the activity above, none of the solvents in the example would pass the screening phase:

- Dichloromethane is an LT-1 it is listed as High for Carcinogenicity based on several lists (which one can see under the “GreenScreen Specified Lists”):
  - CA Prop 65 cancer
  - IARC 2A
  - US NIH-report on Carcinogens- Reasonable Anticipated to be Human Carcinogen
  - US EPA - IRIS Carcinogens - Likely to be carcinogenic to humans
- 1,1,1- Trichloroethanes an LT-1 it is listed as High for Carcinogenicity based on several lists (which one can see under the “GreenScreen Specified Lists”):
  - CA Prop 65 cancer
  - IARC 2A

- 1-Bromopropane is an LT-1 it is listed as High for Carcinogenicity, A reproductive toxicant and a developmental toxicant based on several lists (which one can see under the “GreenScreen Specified Lists”):
  - CA Prop 65 cancer
  - MAK Carcinogen Carc. 2
  - US NIH-report on Carcinogens- Reasonable Anticipated to be Human Carcinogen
  - CA Prop 65 developmental
  - US NIH-Reproductive & Developmental Monographs- Clear Evidence of Adverse Effects- Developmental Toxicity
  - CA Prop 65 reproductive toxicity male
  - CA Prop 65 reproductive toxicity female
  - EU- GHS (H-statements) Repr. 1B
  - US NIH-Reproductive & Developmental Monographs- Clear Evidence of Adverse Effects- Reproductive toxicity