Preliminary List of

Chemical Substances For Further Evaluation

Toxic Substances Control Act
Interagency Testing Committee

July 1977

PRELIMINARY LIST OF CHEMICAL SUBSTANCES

FOR FURTHER EVALUATION BY THE TOXIC SUBSTANCES CONTROL ACT

INTERAGENCY TESTING COMMITTEE

JULY 1977

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SUMMARY

The Toxic Substances Control Act established the TSCA Interagency Testing Committee under Section 4(e). The Committee is charged with responsibility for making recommendations to the Administrator of the Environmental Protection Agency regarding chemical substances or mixtures which should be given priority by EPA for testing to determine adverse effects on human health and the environment. The Committee's recommendations are to be transmitted to the EPA Administrator by October 1, 1977. At least every six months thereafter, the Committee is required to review its recommendations and make such revisions as it deems necessary.

The Committee has encountered certain limitations in trying to evaluate all chemicals on the specific factors set forth in Section 4(e). There is no data system of consolidated chemical information which permitted retrieval of all of the required data. In addition, the many existing data systems are not uniformly formatted in such a manner to easily permit merging of data files. Certain information such as uses and exposure data is often unavailable.

In the light of these limitations, as well as the time constraints, the Committee chose as an initial step to summarize and select from existing lists of prioritized potentially hazardous substances developed by Federal Agencies and other organizations. These lists included some chemicals not subject to the authority of the Toxic Substances Control Act. These were deleted unless they were judged likely to have another use subject to TSCA regulation. In addition, those substances judged not to be in commercial production were removed from the list on the assumption they had low potential for human exposure or environmental contamination. After these deletions, the remaining list consisted of approximately 2100 chemicals or categories which are being further screened in a multi-step process.

The first stage involved screening primarily on the basis of potential for human or environmental exposure. In addition, the Committee exercised professional judgment in eliminating from current consideration many chemicals which are: a) currently under regulation or are being considered for regulation, e.g., vinyl chloride and benzene; b) reasonably well-characterized as hazardous e.g., mercury; c) considered essentially inert materials, such as certain polymers; and d) natural products which would be difficult to characterize for testing purposes, e.g., wood or gasoline.

The first stage has resulted in the identification of approximately 300 substances, mixtures or categories, which are designated as the Preliminary List. These chemicals will be further evaluated in the second stage for their potential for adverse effects to humans and the environment.

In several cases the Committee has grouped chemicals, fully cognizant of the difficulties in identifying appropriate groupings for testing purposes. Among the methods of grouping under consideration are: primary use, structural similarities, predicted toxic effect, etc. While some categories are presented on the Preliminary List, such groupings will be further considered in the review process.

The Preliminary List is in alphabetical order. The presence of a substance on the Preliminary List does not indicate that the Committee is making any statement at this time on whether the substance should be regulated or even tested. Only after the Committee has evaluated the substance's potential for adversely affecting human health or the environment and the adequacy of existing test data bearing on such effects, will the Committee make recommendations. These will be in the form of a list of not more than 50 chemical substances or categories set forth, either individually or in groups, in the priority in which the Committee determines the EPA Administrator should consider taking action.

The Committee seeks comments on the procedures used in developing the preliminary list and on the specific substances or categories that should be further considered by the Committee. Such comments will, to the extent possible, be considered in the development of the list of testing priorities to be sent to the EPA Administrator in October. Because of the statutory deadline, it may be necessary to defer some suggestions, especially as regards procedures, for subsequent revisions. Comments should be submitted by August 22 according to instructions provided in the Background Document.

PART I. PRELIMINARY LIST OF CHEMICAL SUBSTANCES FOR FURTHER EVALUATION BY THE TSCA INTERAGENCY TESTING COMMITTEE (JULY 1977)

CHEMICAL OR CATEGORY NAME	NIOSH No.[1]	CAS No.[2]
Acetaldehyde, Chloro-	AB24500	000107200
Acetamide	AB40250	000060355
Acetamide, Thio-	AC89250	000062555
Acetic acid, Benzyl ester	AF50750	000140114
Acetic acid, Chloro-	AF85750	000079118
Acetic acid, Diazo-, ethyl ester	AG57750	
Acetic acid, (Ethylenedinitrilo)tetra-, tetrasodium salt	AH50750	000064028
Acetic acid, Iminodi-	AI29750	000142734
Acetic acid, Nitrilotri-	AJ01750	000139139
Acetic acid, Trichloro-	AJ78750	000076039
Acetonitrile	AL77000	000075058
Acetophenone, Chloro-	AM61250	001341248
Acetylene	AO96000	000074862
Acetyl peroxide	AP85000	000110225
Acrolein	AS10500	000107028
Acrylamide	AS33250	000079061
Acrylic acid	AS43750	000079107
Acrylic acid, 2-Cyano-, methyl ester	AS70000	000137053

(1) Identification number as given in the Registry of Toxic Effects of Chemical Substances, 1976 edition, National Institute for Occupational Safety and Health. In cases where the substance or mixture of substances was not included in the NIOSH Registry, an identification number was created for the substance in the same format as the NIOSH number. Such numbers are indicated by an asterisk (*).

(2) Chemical Abstracts Service (CAS) number as given in the NIOSH Registry.

Acrylic acid esters

e.g.	Acrylic acid, ethyl ester	AT07000	000140885
	Acrylic acid, 2-ethylhexyl ester	AT08550	000103117
	Acrylic acid, methyl ester	AT28000	000096333

Alkoxy alkanols

e.g.	Ethanol, 2-Butoxy-	KJ85750	000111762
	Ethanol, 2-(2-Butoxyethoxy)-	KJ91000	000112345
	Ethanol, 2-Ethoxy-	KK80500	
	Ethanol, 2-(2-Ethoxyethoxy)-	KK87500	000111900
	Ethanol, 2-Methoxy-	KL57750	000109864
	Ethanol, 2-(2-Methoxyethoxy)-	KL61250	000111773
	Ethanol, 2-(2-(2-Methoxyethoxy)ethoxy)-	KL63900	000112356
	2-Propanol, 1,1'-Oxydi-	UB87850	000110985

Alkyl adipates

e.g.	Adipic acid, Bis(2-ethylhexyl) ester	AU97000	000103231
	Adipic acid, n-octyl n-decyl ester	*ZZ02084	

Alkyl amines

e.g.	Cyclohexylamine	GX07000	000108918
	Diethylamine	HZ87500	000109897
	Dimethylamine	IP87500	000124403
	Dodecylamine	JR64750	000124221
	Ethanamine	KH21000	000075047
	1,2-Ethanediamine	KH85750	000107153
	Isopropylamine	NT84000	000075310
	Methanamine, N,N-Dimethyl-	PA03500	000075503
	Methylamine	PF63000	000074895
	Triethylamine	YE01750	000121448

Alkyl epoxides

e.g.	Butane, 1,2:3,4-Diepoxy-	EJ82250	001464535
	Butane, (+-)-1,2:3,4-Diepoxy-	EJ84000	000298180
	Butane, 1,2:3,4-Diepoxy-, meso-	EJ87500	000564001
	Ethylene oxide	KX24500	000075218
	Butylene oxide	EK36750	000106887

Alkyl phthalates (short chain)		
e.g. Dibutyl phthalate	TI08750	000084742
Diethyl phthalate	TI10500	000084662
Dimethyl phthalate	TI15750	000131113
Dimethyl terephthalate	WZ12250	000120616
Alkyl phthalates (long chain)		
e.g. Bis(2-ethylhexyl) phthalate	TI03500	000117817
Dicyclohexyl phthalate	*ZZ02069	
Diisodecyl phthalate	*ZZ02104	
Diisooctyl phthalate	*ZZ02051	
Dioctyl phthalate	TI19250	000117840
Ditridecyl phthalate	*ZZ02051	
n-Octyl n-decyl phthalate	*ZZ02110	
Alkyl sulfates and sulfonates, linear		
e.g. Dodecyl sulfate, triethanolamine salt	*ZZ02105	
Monododecyl sulfate, sodium salt	WT10500	000151213
Octyl sulfate, sodium salt	*ZZ02056	
Tridecyl sulfate, sodium salt	*ZZ02057	
Allylamine	BA54250	000107119
Aluminum distearate	*ZZ02128	
Ammonium, Alkyl(C8-C18)dimethyl 3,4-dichlorobenzyl-, chloride	BO32000	MX8023538
Aniline	BW66500	000062533
Aniline, o-Chloro-	BX05250	000095512
Aniline, 3,4-Dichloro-	BX26250	000095761
Aniline, N,N-Diethyl-	*ZZ02065	
Aniline, N,N-Dimethyl	BX47250	000121697
Aniline, N,N-Dimethyl-p-nitroso-	BX71750	000138896
Aniline, 4,4'-Methylenebis(N,N'-dimethyl)-	BY52500	000101611
Aniline, 4,4'-Methylenedi-	BY54250	000101779
Aniline, N-Methyl-N,2,4,6-tetranitro-	BY63000	000479458
Aniline, p-Nitro-	BY70000	000100016
Aniline, p-(Phenylazo)-	BY82250	000060093
Aniline, 2,4,5-Trimethyl-	*BZ08750500	

p-Anisidine	BZ54500	000104949
Anthranilic acid	CB24500	000118923
Antimony and Antimony compounds		
e.g. Antimony	CC40250	007440360
Antimony (III) chloride	CC49000	
Antimony trioxide		
Antimony trisulfide	CC94500	001345046
Arsine	CG64750	007784421
Aryl phosphates		
e.g. Cresyl diphenyl phosphate		
Triphenyl phosphate	TC84000	000115866
Tris(2-ethylhexyl) phosphate		
Tris(isopropylphenyl) phosphate		
Tritolyl phosphate	TD01750	001330785
Aryl sulfonic acids and salts		
e.g. Benzenesulfonic acid, Dodecyl-	DB64750	027176870
Xylenesulfonic acid, sodium salt	ZE51000	
Azelate, Di(2-ethylhexyl)-	CM20000	000103242
1-Aziridineethanol	CM70000	001072522
Aziridine, 2-Methyl-	CM80500	000075558
Azoxybenzene	CO40250	000495487
Benzaldehyde	CU43750	000100527
Benzene, Chloro-	CZ01750	000108907
Benzene, 1-Chloro-2-nitro-	CZ08750	000088733
Benzene, 1-Chloro-3-nitro-	CZ09400	000121733
Benzene, 1-Chloro-4-nitro-	CZ10500	000100005
Benzene, Dichloro-		
e.g. Benzene, p-Dichloro-	CZ45500	000106467
Benzene, o-Dichloro-	CZ45000	000095501
Benzene, Dinitroso-		
Benzene, Divinyl-	*ZZ02060	
Benzene, (Epoxyethyl)-	CZ96250	000096093
Benzene, Ethyl-	DA07000	000100414

Benzene, Hexachloro-	DA29750	000118741
Benzene, 1,2-(Methylenedioxy)-4-propenyl-	DA59500	000120581
Benzene, Nitro-	DA64750	000098953
Benzene, Pentachloro-	DA66400	
Benzidine, 3,3'-Dimethoxy-	DD08750	000119904
Benzimidazole, 6-Nitro-	DD98000	000094520
Benzoic acid, 2-((4-Dimethylamino)phenylazo)-	DG89600	000493527
Benzophenone, 4,4'-Bis(dimethylamino)-	DJ02500	000090948
p-Benzoquinone dioxime	DK49000	000105113
Benzothiazole, 2,2'-Dithiobis-	DL45500	000120785
Benzothiazole, 2-(Morpholino-thio)-	DL59500	000102772
2-Benzothiazolesulfenamide, N-Cyclohexyl-	DL61250	000095330
Benzoyl chloride	DM66000	000098884
Benzoyl peroxide	DM85750	000094360
Benzyl alcohol	DN31500	000100516
Beryl	DS14000	001302529
Beryllium oxide	DS40250	001304569
Biphenyl	*DU80500500	
Biphenylamines		
e.g. 2-Biphenylamine	DU88500	000090415
4-Biphenylamine	DU89250	000092671
2,4'-Biphenyldiamine	DV21000	000492171
Bismuth and Bismuth compounds		
e.g. Bismuth		
Bismuth, Tris(dimethyldithiocarbamato)-	EB34000	021260468
1,3-Butadiene	EI92750	000106990
Butadiene and Butylene fractions	*EI92750500	
1,3-Butadiene, 2-Chloro-	EI96250	000126998
1,3-Butadiene, Hexachloro-	EJ07000	000087683

1-Butene	*EM28900250	
2-Butene (cis and trans)	*EM28900500	
2-Butene, 1,4-Dichloro-, (e)-	EM49030	000110576
t-Butyl peroxide	ER24500	000110054
Carbon black		
Carbon disulfide	FF66500	000075150
Carbon tetrabromide	FG47250	000558134
Carbon tetrafluoride	FG49200	000075730
Cellulose tetranitrate	FJ60000	PM9004700
Chloral hydrate	FM87500	000302170
Chloramine		
Chlorinated paraffins, 35-64% chlorine	*RV03500500	
Chromium compounds	*GB42000500	
e.g. Chromic acid, calcium salt (1:1), dihydrate	GB28000	010060089
Chromic acid, dipotassium salt	GB29400	007789006
Chromium (III) oxide (2:3)	GB64750	001308389
Chromium (VI) oxide (1:3)	GB66500	001333820
Cobalt	GF87500	007440484
Cobalt (II) nitrate (1:2)	GG11090	010141056
Cobalt (II) sulfide	GG33250	001317426
Copper and Copper compounds	*GL53250500	
e.g. Copper (metal)	GL53250	007440508
Cresol		
e.g. Cresol	GO59500	001319773
o-Cresol	GO63000	000095487
m-Cresol, 4,4'-Butylidenebis(6-tert-butyl)-	GO70500	000085609
p-Cresol, 2,6,-Dinitro-	GO98000	
m-Cresol, 4,4'-Thiobis(6-tert-butyl)-	GP31500	000096695
Crotonaldehyde, (e)-	GP96250	000123739
Cumene	GR85750	000098828

Cyanamide, calcium salt	GS60000	000156627
Cyclohexanol	GV78750	000108930
Cyclohexanol, Methyl-	GW01750	
Cyclohexanone	GW10500	000108941
Cyclohexene	GW25000	000110838
1-Cyclohexene, 4-Vinyl-	GW66500	000100403
1,3-Cyclopentadiene	GY10000	000542927
Cyclopentadiene, Hexachloro-	GY12250	
Cyclopentane	GY23900	000287923
Cyclopentane, Methyl-	GY46400	000096377
Decaborane(14)	HD14000	017702419
Dibenzofuran	*HP45500500	
Diethylamine, 2,2'-Dichloro-N-methyl-	IA17500	000051752
Dimethyl sulfoxide	PV62100	000067685
p-Dioxane	JG82250	000123911
Diphenylamine	JJ78000	000122394
Diphenylamine, 2,2',4,4',6,6'-Hexanitro-	JJ92750	000131737
Diphenylamine, 4-Isopropoxy-	JJ95000	000101735
Diphenylamine, N-Nitroso-	JJ98000	000086306
Diphenylamine, 4-Nitroso-	JK01750	000156105
Ethane, Bromo-	KH64750	000074964
Ethane, Chloro-	KH75250	000075003
Ethane, 1,2-Dichloro-	KI05250	000107062
Ethane, 1,1,2,2-Tetrabromo-	KI82250	000079276
Ethane, 1,1,1-Trichloro-	KJ29750	000071556
Ethane, 1,1,2-Trichloro-	KJ31500	000079005
Ethanol, 2-Amino-	KJ57750	000141435
Ethanol, 2-Chloro-	KK08750	000107073

Ethanol, 2-Dimethylamino-	KK61250	000108010
Ethanol, 2,2'-Iminodi-	KL29750	000111422
Ethanol, 2,2',2''-Nitrilotri-	KL92750	000102716
Ether, 2-Chloroethyl vinyl	KN63000	000110758
Ethylene	KU53400	000074851
Ethylene, Bromo-	KU84000	000593602
Ethylenediamine, N-(1-Naphthyl)-, dihydrochloride	KV53300	001465254
Ethylene, 1,1-Dichloro-	KV92750	000075354
Ethylene, 1,2-Dichloro		
e.g. Ethylene, 1,2-Dichloro- Ethylene, 1,2-Dichloro-,(e)-	KV93600 KV94000	000540590
Ethylene, Tetrachloro-	KX38500	000127184
Ethylene, Trichloro-	KX45500	000079016
Ferrocene	LK07000	000010254
Flame retardants (brominated alcohols)		
e.g. Dibromobutenediol Dibromoneopentyl glycol 2,3-Dibromopropanol Tribromoneopentyl alcohol	UB01750	000096139
Flame retardants (brominated aromatic compounds)		
e.g. Decabromobiphenyl Decabromobiphenyl ether Hexabromobenzene Hexabromobiphenyl Hexabromocyclododecane		
Flame retardants (halogenated phosphates and phosphonates)		
e.g. Bis(2-chloroethyl)vinyl phosphonate Chlorinated polyphosphates Diethyl 2-bromoethylphosphonate Tris(4-bromophenyl) phosphate Tris(2-chloroethyl) phosphate Tris(2,3-dibromopropyl) phosphate Tris(2,3-dichloropropyl) phosphate Tris(2,4,6-tribromophenyl) phosphate		

Flame retardants (hexachlorocyclopentadiene derivatives)

e.g. Bis(chlorendo) bicyclopentadiene
Bis(chlorendo) cyclooctadiene
Bis(chlorendo) furan
Bishexachlorocyclopentadiene
Chlorendic acid
Chlorendic anhydride
Chlorendic salts
Chlorendocyclooctadiene
Bromochlorendocyclooctadiene
2,3,4,5-Tetrabromophenyl-2,2a,2a,3,4,5-hexachloro-bicycloheptadiene

Flame retardants (miscellaneous halogenated compounds)

e.g. Ammonium bromide
Tetrabromobisphenol A, Bis(2,3-dibromopropyl ether)
Tetrabromophthalic anhydride
2,2',6,6'-Tetrabromo-3,3',5,5'-tetramethyl-4,4'-dihydroxybiphenyl
Tetrachlorobisphenol A
Tetrachlorophthalic anhydride

Flame retardants (phosphonium compounds)

e.g. Tetrakis(hydroxymethyl) phosphonium bromide
Tetrakis(hydroxymethyl) phosphonium chloride
Tetrakis(hydroxymethyl) phosphonium hydroxide
Tetrakis(hydroxymethyl) phosphonium sulfate

Fluorescent brightening agents	*LM59500500	
e.g. 4,4'-Diamino-2,2'-stilbenedisulfonic acid	*ZZ02081	
Fluoroacetamide	AC12250	000640197
Fluorocarbons (excluding fully halogenated chlorofluoro-alkanes)		
e.g. Ethane, 1-Chloro-1,1-difluoro-	KH76500	000075683
Methane, Chlorodifluoro-	PA63900	000075456
Methane, Dichlorofluoro-	PA84000	000075434
Formaldehyde	LP89250	000050000
Formamide	LQ05250	000075127
Formamide, N,N-Dimethyl-	LQ21000	000068122
Formic acid	LQ49000	000064186
Fumaric acid	LS96250	000110178
2-Furaldehyde	LT70000	000098011
Furan, Tetrahydro-	LU59500	000109999

Glycols (low molecular weight)		
e.g. Diethylene glycol	ID59500	000111466
Ethylene glycol	KW29750	000107211
1,2-Propanediol	TY20000	000057556
Tetraethylene glycol	XC21000	000112607
Triethylene glycol	YE45500	000112276
Heptane	MI77000	000142825
Heptene (mixed isomers)	MJ88500	
Hexamethylenetetramine	MN47250	000100970
1,6-Hexanediamine	MO11800	000124094
Hexanes and other C6 hydrocarbons	*MN92750500	
e.g. Cyclohexane	GU63000	000110827
Hexane	MN92750	000110543
Pentane, 2-Methyl-	SA29950	000107835
1-Hexanol, 2-Ethyl-	MP03500	000104767
Hydrazine, methyl hydrazines, and their derivatives		
e.g. Hydrazine	MU71750	000302012
Hydrazine, 1,1-Dimethyl-	MV24500	000057147
Hydrazine, Methyl-	MV56000	000060344
Hydrazine, monohydrate	MV80500	007803578
Hydrazine, 1,1-Diphenyl-	*MW26250500	
Hydrazobenzene	MW26250	000122667
Hydrocyanic acid	MW68250	000074908
Hydrogen selenide	MX10500	007783075
Hydrogen sulfide	MX12250	007783064
Hydroperoxide, alpha, alpha-Dimethylbenzyl-	MX24500	000080159
Hydroquinone	MX35000	000123319
Hydroxylamine	NC29750	007803498
Hydroxylamine, O-Methyl-	NC38500	000067629
Hydroxylamine, N-Phenyl-	NC49000	000100652
Isocyanic acid, p-chlorophenyl ester	NQ85750	000104121
Isophthalic acid	NT20000	000121915
Isoprene	NT40370	000078795

Ketones, asymmetric		
e.g. 2H-Azepin-2-one, Hexahydro-	CM36750	000105602
2-Butanone	EL64750	000078933
Cyclohexanone, 2-Methyl-	GW17500	
2-Heptanone	MJ50750	000110430
3-Heptanone, 5-Methyl-	MJ73500	000541855
2-Hexanone	MP14000	000591786
2-Hexanone, 5-Methyl-	MP38500	000110123
2-Pentanone, 4-Methyl-	SA92750	
Lauroyl peroxide	OF26250	000105748
Lead, Bis(dimethyldithiocarbamato)-	OF88500	019010663
Ligninsulfonic acid, calcium salt	*ZZ02119	
Ligninsulfonic acid, ferrochrome salt	*OI31500500	
Lithium hydride	OJ63000	007580678
Maleic acid, dibutyl ester	ON08750	000105760
Maleic anhydride	ON36750	000108316
Manganese	OO92750	007439965
Manganese, Tricarbonyl 2-methylcyclopentadienyl	OP14700	
Melamine	OS07000	000108781
p-Menthane-8-hydroperoxide	OS94500	
Mercaptans	*OU22750500	
e.g. Dodecyl mercaptan	*JR80500500	
Methacrylic acid esters		
e.g. Methacrylic acid, butyl ester	OZ36750	000097881
Methacrylic acid, ethyl ester	OZ45500	000097632
Methacrylic acid, methyl ester	OZ50750	000080626
Methane, Bis(2-chloroethoxy)-	PA36750	000111911
Methane, Bromo-	PA49000	000074839
Methane, Bromochloro-	PA52500	000074975
Methane, Bromotrifluoro-	PA54250	000075638
Methane, Chloro-	PA63000	000074873
Methane, Dibromo-	PA73500	000074953

Methane, Dibromodifluoro-	PA75250	000075616
Methane, Dichloro-	PA80500	000075092
Methane, Dimethoxy-	PA87500	000109875
Methane, Iodo-	PA94500	000074884
Methane, Tribromo-	PB56000	000075252
Morpholine	QD64750	000110918
Naphthalene	QJ05250	000091203
Naphthalene, Decahydro-	QJ31500	000091178
Naphthalene, 1-Nitro	QJ97200	000086577
Naphthalenes, chlorinated		
e.g. Naphthalene, Pentachloro-	QK03000	
Naphthalene, Tetrachloro-	QK37000	
Naphthalene, Trichloro-	QK40250	001321659
"Chlorinated naphthalenes"	*QJ21000500	
Naphthenic acid, copper salt	QK91000	001338029
Naphthenic acid, lead salt	OG20250	
2-Naphthylamine, N,N-Bis(2-chlorethyl)-	QM24500	000494031
2-Naphthylamine, N-Phenyl-	QM45500	000135886
Nickel and Nickel compounds		
e.g. Nickel (metal)	QR59500	007440020
Nickel (II) acetate(1:2)	QR61250	000373024
Nickel, compd with pi-cyclopentadienyl (1:2)	QR65000	001271289
Nickel (II) oxide (1:1)	QR84000	001313991
Nitrophenols		
e.g. Phenol, m-Nitro-	SM19250	000554847
Phenol, o-Nitro-	SM21000	000088755
Phenol, p-Nitro-	SM22750	000100027
Nonene (mixed isomers)	RA85500	
Octadecanoic acid, 9,10-Epoxy-, butyl ester	RG15750	000106832
Octane	RG84000	
Oxalic acid	RO24500	000144627
2H-1,3,2-oxyazaphosphorine, 2-(Bis(2-chloroethyl)amino) tetrahydro-, 2-oxide	RP59500	000050180

Pentane	RZ94500	000109660
1,3-Pentanediol, 2,2,4-Trimethyl-	SA14000	000144194
1-Pentanol, 2-Methyl-	SA71750	000105306
2-Pentanol, 4-Methyl-	SA73500	000108112
Peroxide, Bis(alpha,alpha-dimethylbenzyl)	SD81500	000080433
Peroxide, Bis(dimethylethyl)	*SD78850500	
Peroxyacetic acid	SD87500	000079210
Peroxybenzoic acid, t-butyl ester	SD94500	000614459
Petroleum distillates (boiling point 35-130°C)		
e.g. Petroleum spirits (ligroin, solvent naphtha)	SE75550	
Benzin	DE30300	008030306
Phenol, 2,4-Dichloro-	SK85750	000120832
Phenol, Dodecyl-	SL36750	001331573
Phenol, 4,4'-Isopropylidenedi-	SL63000	000080057
Phenol, Nonyl-	SM56000	025154523
Phenol, Tetrachloro-	SM91000	025167833
Phenol, 3,4,5-Trichloro-	SN16500	000609198
o-Phenylenediamine	SS78750	000095545
p-Phenylenediamine	SS80500	000106503
p-Phenylenediamine, dihydrochloride	ST03500	000624180
p-Phenylenediamine, N,N'-Diphenyl-	ST22750	000074317
o-Phenylenediamine, 4-Nitro-	ST29750	000099569
Phosphine oxide, Tris(1-aziridinyl)-	SZ17500	000545551
Phosphine	SY75250	007803512
Phosphines (PR_3)		
i.e. R = alkyl, aryl and alkoxy (mixed)		
Phosphonic acid, bis(2-chloroethyl)(1-hydroxyethyl) ester		
Phosphorane, Pentachloro-	TB61250	010026138

Phosphoric triamide, Hexamethyl-	TD08750	000680319
Phosphorotrithioic acid, S,S,S,-tributyl ester	TG54250	000078488
Phthalic acid	TH96250	000088993
Phthalic anhydride	TI31500	000085449
Picric acid		
e.g. Picric acid (dry)	TJ78780	
Picric acid (wet)	TJ88500	
Pigment blue 15, alpha and beta forms	*ZZ02123	
Pigment green 7	*ZZ02062	
Pigment yellow 12	*ZZ02076	
Pine oil	TK51000	MX8006880
Polyacrylonitrile (fibers)	*TQ03500500	
Polychlorinated diphenyl ethers	*KN89700500	
Polychlorinated triphenyls	TQ13800	
Potassium pyrophosphates	TT49000	
Propane, 1-Chloro-2,3,-epoxy-	TX49000	000106898
Propane, 1,2-Dichloro-	TX96250	000078875
Propane, 1,2-Epoxy-	TZ29750	000075569
Propane, 1-Nitro-	TZ50750	000108032
Propane, 2-Nitro-	TZ52500	000079469
Propane, 2,2'-Oxybis-	TZ54250	000108203
Propane, 1,2,3-Trichloro-	TZ92750	000096184
2-Propanol, 1-Chloro-	UA87500	000127004
1-Propanol, 2,3-Epoxy-	UB43750	000556525
2-Propanone, 1-Chloro-	UC07000	000078955
2-Propanone, 1,1,1,3,3,3-Hexafluoro-	UC24500	000684162
Propene	UC67400	000115071
Propene, 3-Chloro-	UC73500	000107051
Propene, 1-Chloro-2-methyl-	UC80450	

Propene, 3-Chloro-2-methyl-	UC80500	000563473
Propene, 2-Methyl-	UD08900	000115117
2-Propenoic acid, butyl ester	UD31500	000141322
Propionitrile, 3-Amino-	UG03500	000151188
Propyne, mixed with propadiene	UK49200	
Pyridine	UR84000	000110861
Quinoline, 1,2-Dihydro-2,2,4-trimethyl-	VB49000	000147477
8-Quinolinol	VC42000	000148243
Sebacic acid, Bis(2-ethylhexyl) ester	VS10000	000122623
Selenium dimethyldithiocarbamate		
Selenium, Tetrakis(diethyldithiocarbamato)-	VT07000	017156831
Silver iodide		
Soaps (fatty acid salts)		
Sodium dibutyldithiocarbamate	EZ38800	000136301
Sodium thiosulfate, pentahydrate	WE66600	010102177
Stearic acid, methyl ester	WI44600	000112618
Stibene	WJ07000	007803523
Styrene	WL36750	000100425
Styrene, alpha-Methyl-	WL52500	000098839
Styrenes, chlorinated		
e.g. Chlorostyrene	WL41500	001331288
Sulfide, Bis(dimethylthiocarbamoyl)	WQ17500	000097745
Terephthalic acid	WZ08750	000100210
Thiophene, 2,5-Dihydro-, 1,1-dioxide	XM91000	000077792
Thiophene, Tetrahydro-, 1,1-dioxide	XN07000	000126330
Titanium dioxide	XR22750	013463677
Toluene	XS52500	000108883
Toluene, alpha-Chloro-	XS89250	000100447

Toluene, p-Chloro-	XS90100	000106434
Toluene-2,4-diamine	XS96250	000095807
Toluene-2,4- and -2,6-diisocyanate (80/20 mixture)	*CZ63000500	
Toluene, 2,4, (and 2,6)-Dinitro-	*XT15750500	
Toluene, alpha,alpha,alpha-Trichloro-	XT92750	000098077
Toluene, Vinyl (mixed isomers)	XU03500	
Toluidines		
e.g. m-Toluidine	XU28000	000108441
o-Toluidine	XU29750	000095534
p-Toluidine	XU31500	000106490
Triallylamine	XX59500	000102705
s-Triazine, Hexahydro-1,3,5-trinitro-	XY94500	000121824
s-Triazine, 2,4,6-Trichloro-	XZ14000	000108770
s-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5,-Trichloro-	XZ19250	000087901
Trichlorobenzenes, mixed		
Triethylenetetramine	YE66500	000112243
Tungsten	YO71750	007440337
Tungsten carbide		
Turpentine	YO84000	MX8006642
Vanadium compounds	*YW15750500	
e.g. Vanadium pentoxide (dust and fume)	YW24500 YW24600	001314621
Vat blue 6	*ZZ02058	
Xylenes		
e.g. Xylene (mixed isomers)	ZE21000	001330207
"Mixed Xylene"	ZE21900	
m-Xylene	ZE22750	000108383
o-Xylene	ZE24500	000095476
p-Xylene	ZE26250	000106423
Xylenols		
e.g. 2,5-Xylenol	ZE57750	000095874
3,4-Xylenol	ZE63000	000095658
3,5-Xylenol	ZE64750	000108689

Xylidine	ZE85750	001300738
Zinc (metal)	ZG86000	007440666
Zinc, Bis(dibutyldithiocarbamato)-	ZH01750	000136232
Zinc, Bis(diethyldithiocarbamato)-	ZH03500	000136947

PART II. BACKGROUND DOCUMENT: PREPARATION OF PRELIMINARY LIST OF CHEMICAL SUBSTANCES FOR FURTHER EVALUATION BY THE TSCA INTERAGENCY TESTING COMMITTEE

July 1977

1. INTRODUCTION

1.1 COMMITTEE ESTABLISHMENT AND RESPONSIBILITIES

Section 4(e) of the Toxic Substances Control Act (P.L. 94-469) established an Interagency Committee charged with making recommendations to the Administrator of the Environmental Protection Agency regarding chemical substances or mixtures to which EPA should give priority attention in the development and promulgation of regulations under Section 4(a) of the Act which authorizes the testing of substances or mixtures to determine what adverse effects they may have on human health and the environment.

The Committee has eight members, appointed by the eight Federal agencies identified for membership in Section 4(e) (2)(A) of the Act. In addition, a number of alternates have been designated as permitted by Section 4(e)(2)(B)(i). The Committee has adopted the name "TSCA Interagency Testing Committee", referred to in this report as the "Committee". As provided by Section 4(e)(2)(B)(iii), it has selected a chairman from among its members. The Committee has also invited several other Federal agencies with programs related to the control of toxic substances but which were not included in the statutory membership of the Committee to designate observers to attend Committee meetings. Current Committee members, alternates, and observers are listed in Appendix A.

The Committee's testing priority recommendations are required by Section 4(e) to be published in the Federal Register and transmitted to the EPA Administrator by no later than October 1, 1977. At least every six months thereafter, the Committee is required to review its recommendations and make such revisions as are necessary.

The Committee's recommendations will be in the form of a list of chemical substances or mixtures set forth, either individually or in groups, in the order in which the Committee determines the EPA Administrator should consider taking action under Section 4(a) rulemaking in developing and promulgating testing regulations. The Committee is authorized to designate up to 50 substances or groups for which the EPA Administrator must within 12 months either initiate rulemaking requiring their testing or publish reasons for not taking such action.

In developing its recommendations, the Committee is directed by the statute (Section 4(e)) to consider, along with all other relevant factors: the production volume, environmental release, occupational exposure, and non-occupational human exposure to the substance or

mixture; the similarity of the substance or mixture in question to others known to present unreasonable risk of injury to health or the environment; the extent of data on the effects of the substance or mixture in question on health or the environment and the extent to which additicnal testing of the substance or mixture may produce data from which effects can reasonably be determined or predicted; and the reasonably foreseeable availability of facilities and personnel for performing the testing being recommended. The Committee is also directed by the statute (Section (4e)) to give priority attention in establishing its list of recommendations to substances or mixtures which are known or suspected to cause or contribute to cancer, gene mutations, or birth defects.

While the Committee will review existing data on toxic effects it should be emphasized that the purpose of the Committee is to recommend substances for testing. Lack of data indicating possible hazard will not prejudice against its being recommended for testing in those cases where significant exposure can occur. Indeed many such chemicals may be prime candidates for testing. The Committee will also exercise judgment as to adequacy of existing test results.

The Committee's specific reasons for including each substance or mixture in its recommendations are required to be published in the Federal Register and transmitted to the EPA Administrator along with the priority list.

While Section 4(e) refers to the Committee's recommendations as a list of "chemical substances and mixtures", Section 26(c)(1) authorizes the EPA Administrator to take actions (including the promulgation of Section 4(a) testing regulations) with respect to categories of chemical substances or mixtures as well. A category is defined by the Act as a group whose members are similar in molecular structure; in physical, chemical, or biological properties; in use; in mode of entrance into the human body or into the environment; or in any other way, so long as the grouping is not based solely on its members being "new chemical substances" as defined in the Act. Since the EPA Administrator is authorized to promulgate testing regulations for categories of chemical substances or mixtures, the Committee has interpreted that its recommendations to the EPA Administrator may also include categories (or groups) of chemical substances or mixtures as well as individual substances and mixtures. This conclusion is consistent with Section 4(e) which states that the Committee's recommendations for testing "shall be in the form of a list of chemical substances or mixtures which shall be set forth either by individual substance or mixture or by groups of substances or mixtures."

In order to maintain consistency in this report and in keeping with the meaning in the Act, the term "category" will be used to reflect groupings of substances. Likewise "substance" will refer to both individual chemicals as well as mixtures.

1.2 BASIC APPROACH ADOPTED BY THE COMMITTEE

Section 4(e), as previously noted, requires the Committee to evaluate a number of factors for each chemical substance or mixture included in its list of priority recommendations to the EPA Administrator. In considering possible approaches to meeting these responsibilities, certain limitations became evident. There was no data system of consolidated chemical information which permitted retrieval of all of the required data. In addition, the many existing data systems were not formatted in such a manner to easily permit merging of data files, e.g., CAS numbers were not always available and chemical names were not always designated in a uniform manner. Certain information required by the Committee was often unavailable. This was particularly critical for chemical uses and occurrences thus limiting the Committee's knowledge of overall exposure to many chemicals.

In the light of these limitations as well as the time constraints of its charge, the Committee chose to use existing lists of prioritized potentially hazardous substances developed by other agencies and organizations as a primary starting point in its review process. Since the criteria used in the development of these lists were similar to those of the Committee, the lists were used in their original form. The sources of these starting lists are discussed in Section 3.

When these lists were combined, an initial listing emerged containing approximately 3500 substances and categories. Included in this was a number of drugs, food additives or pesticides not subject to the authority of the Toxic Substances Control Act. These substances were dropped from the list unless they were judged likely to have another use subject to TSCA regulation. In addition, those substances judged not to be in commercial production were removed from the list on the assumption that they had low potential for human exposure or environmental contamination. After these deletions, the remaining list consisted of approximately 2100 substances which is hereafter referred to as the "Master File".

The Master File will be screened in a 3-stage process. The first stage has been completed and involved screening the substances on the basis of potential for human or environmental exposure. From this stage, approximately 300 substances and categories have been designated as the "Preliminary List" which is presented here for information and comment. In the second stage, the substances and categories on the Preliminary List will be further evaluated on the basis of their potential for adverse effects to humans and the environment. It is anticipated that perhaps 100 substances or categories, will emerge from the second phase of screening for a most intensive and detailed third stage review by the Committee.

Subsequent to the development of the Master File, additional information has been made available by the Consumer Product Safety Commission consisting of 1288 chemicals occurring most often in over 15,000 consumer products surveyed in 1976. From this new data source as well as comments received from the public regarding the Preliminary List, it is possible that additional chemicals will be considered in detail by the Committee.

1.3 REQUEST FOR COMMENTS ON PRELIMINARY LIST

The Preliminary List and this Background Document are being made available at this time to allow public comment on the procedures used by the Committee in developing the Preliminary List and on the specific chemical substances, mixtures and categories which should be further evaluated by the Committee for possible inclusion in its testing priority recommendations to be made to the EPA Administrator by October 1, 1977.

Sections 2 and 3 of this Background Document discuss in more detail the rationale behind the Preliminary List and the methods and data sources which were used to develop it. Section 4 outlines specific areas in which the Committee seeks comments and discusses the types of data and formats for submission of such data which would be most helpful to the Committee in evaluating proposed changes to the list of substances. Finally, Section 5 provides details on the procedures for submitting comments on the Preliminary List.

Only the Preliminary List will be distributed to the public. The Master File and the list of other chemicals or categories considered by the Committee will also be available for inspection at the Council on Environmental Quality and Headquarters and Regional Offices of the Environmental Protection Agency.

2. THE PRELIMINARY LIST

The Preliminary List which accompanies this Background Document contains in alphabetical order the names of chemical substances, mixtures and categories which are candidates for inclusion in the priority list under development by the Committee. The presence of a substance on the list indicates that the substance:

(a) Was on one of a number of previously developed lists of substances which may pose adverse health and/or environmental effects; and

(b) Was judged by the Committee to warrant further evaluation because significant human exposures and/or environmental release can be expected.

On the other hand, the presence of a substance on the Preliminary List does not, by itself, indicate that the Committee is making any statement on whether the substance should be regulated or on the need or priority for further testing of that substance. The Committee has not yet completely evaluated the substance's potential for adversely affecting human health or the environment. Nor has the Committee yet evaluated the adequacy of existing test data bearing on such effects. Only after the Committee has evaluated these factors will recommendations be developed. Moreover, the Committee does not exclude the possibility of recommending the testing of additional substances or categories, even though they do not appear on the Preliminary List. In general, categories of substances appearing on the Preliminary List reflect category or group entries on one or more of the source lists used by the Committee. The Committee will consider the rationale for those categories as well as the desirability of forming other categories in developing its recommendations.

3. METHODOLOGY USED TO DEVELOP THE PRELIMINARY LIST

3.1 OVERVIEW

The statute imposes a deadline of October 1, 1977 for the Committee to make its initial recommendations to the EPA Administrator. As discussed earlier in Section 1.2, a method was chosen to maximize the retrieval and consolidation of available data in view of this imposed time constraint. The methodology possesses three main features: 1) it relies heavily on previous efforts to identify chemicals which may pose a hazard to man or the environment; 2) it makes maximum use of readily available chemical data; and 3) it incorporates subjective judgment in those areas where data are absent or not easily accessible.

Accordingly, the Committee adopted a methodolgy whereby an initial listing of chemicals was successively reduced to smaller lists through the application of screening criteria. The initial compilation of the various lists resulted in a compendium consisting of approximately 3500 different substances and categories that were previously identified either as potentially hazardous to man or the environment or in annual production in quantities of over one million pounds per year. The sources of the initial listing are given in Appendix B.

3.2 THE INITIAL LISTING

The initial listing included a number of substances that had pesticide, food additive, or drug uses, all of which are regulated under other Federal statutes and exempted from regulation by TSCA. Therefore, the initial listing was purged of substances with such uses by screening it against lists of pesticides prepared by the EPA and lists of food additives and drugs prepared by the Food and Drug Administration. The basis for comparing chemicals on the three listings was the Chemical Abstracts Service (CAS) Registry Number. The attempted purge of these regulated substances was incomplete, since some entries on source lists did not include CAS numbers. To compensate for this, a further manual purging was required. Consideration was also given to the fact that a chemical with a pesticide, food additive or drug use may have other uses that are subject to the authority of TSCA. Thus chemicals with over 10 million pounds of annual production were retained in the truncated list for further review of possible uses, as were chemicals which had known uses that were within the TSCA regulation.

The resulting file was further reduced by the elimination of chemicals which were judged not likely to be in commercial production. This was accomplished by comparing the file against EPA's Candidate List of Chemical Substances, prepared by the Office of Toxic Substances (dated April 1977). Again, the basis of comparison for this purge was an assigned CAS number. Consequently, this purge did not affect those chemicals on source lists for which no CAS number was given. In an attempt to eliminate substances which are not in commerical production, the following rule was adopted: any substance not

identified by a CAS number which appeared on the NIOSH Registry (Source List 13 of Appendix B) and on none of the other source files, was judged not likely to be in commercial production. This decision was based on the fact that the NIOSH Registry lists any chemical for which toxic effects have been reported, including research chemicals. A study of the chemicals eliminated by the application of this rule upholds its validity: few of the purged chemicals were recognized to be in commercial production.

3.3 THE MASTER FILE

As a result of the purges described above, a Master File of approximately 2100 substances emerged. The Committee reduced this list by the further application of a set of screening criteria. This screen was designed to truncate the Master File on the basis of each chemical's relative potential for entering the environment in appreciable quantities with consequent exposure to humans and other sensitive species. The screening factors selected for this purpose correspond to the first four factors set forth in TSCA Sec. 4(e) as ones which the Committee should consider when making its recommendations to the EPA Administrator. They are:

(i) quantity produced annually
(ii) amount released into the environment
(iii) number of individuals who are occupationally exposed
(iv) extent to which the general population will be exposed.

Using a combination of published data and judgment, an attempt was made to score each substance on the Master File on each of these four factors. Appendix C describes in more detail how scores were assigned to substances. A score was assigned to a substance only if information was available giving the use or uses of the substance. For approximately 1400 substances, inadequate data on uses prevented their scoring and further evaluation. The Committee will attempt to obtain the needed information on these substances to permit their consideration for subsequent Committee revisions.

3.4 THE PRELIMINARY LIST

In the first stage (exposure) screen, approximately 700 chemicals were assigned scores for the four exposure factors. Chemicals were ranked by summing the individual scores, assigning equal weighting to each factor. This ranking was the principal basis for selection of substances for the Preliminary List. In addition, the Committee exercised professional judgment in eliminating from current consideration many chemicals which are: a) currently under regulation or being considered for regulation, e.g., vinyl chloride and benzene; b) reasonably well-characterized as hazardous, e.g., mercury; c) considered essentially inert materials, such as certain polymers; and d) natural products which would be difficult to characterize for testing purposes, e.g., wood or gasoline.

The first stage of screening resulted in the identification of approximately 300 substances, mixtures or categories, which are designated as the Preliminary List. These chemicals will be further evaluated in the second stage for their potential for adverse effects to humans and the environment.

In several cases the Committee has grouped chemicals, fully cognizant of the difficulties in identifiying appropriate groupings for testing purposes. Among the method of grouping under consideration are: primary use, structural similarities, predicted toxic effect, etc. While some categories are presented on the Preliminary List, such groupings will be further considered in the review process.

The chemicals on the Preliminary List will be further screened on the basis of potential for carcinogenic, mutagenic and teratogenic activity, other human effects, ecological potential hazards and the need for further testing. This screening process will result in the Committee recommending to the EPA Administrator up to 50 substances or categories that require priority consideration for testing.

4. TYPES OF COMMENTS SOUGHT AND RECOMMENDED RESPONSE FORMATS

4.1 GENERAL INFORMATION

Comments are specifically sought by the Committee on the methodology used in developing the Preliminary List, on the content of the Preliminary List, and on the specific types of test data which are needed on substances appearing on the Preliminary List.

Because of the October 1, 1977 statutory deadline for the Committee's initial recommendations to the EPA Administrator, it is necessary that comments on the Preliminary List be timely and concise, but that they provide adequate information to allow the Committee to evaluate the recommendations made by commentors. This is particularly important in the case of comments on the content of the Preliminary List (i.e., recommendations that the Committee consider a substance not appearing on the Preliminary List or drop from consideration a substance which does appear on the Preliminary List).

As an aid to commentors, this section of the Background Document discusses the specific types of information which the Committee considers desirable to permit adequate evaluation of comments and provides recommended formats for the submission of information by commentors on the content of the Preliminary List. While it is not mandatory that commentors follow the recommended formats, failure to provide the types of information requested in the formats and marked deviations from the suggested formats may make it difficult for the Committee to take such comments into account in establishing its initial list of recommendations to the EPA Administrator.

While submission of adequate supporting data is important to the effective and timely consideration by the Committee of commentors' recommendations, submission of voluminous studies and large volumes of raw data may impede, rather than assist, the Committee's consideration of the commentor's views. Therefore, it is requested that commentors summarize information where possible in their submissions providing references to primary data sources on which the summarized comments are based, and where applicable identify an individual as a contact point.

It is also requested that commentors not submit with their comments data or copies of studies for which the commentor wishes to claim confidential treatment. Copies of all comments on the Preliminary List submitted to the Committee will be subject to public inspection. Where information which the commentor considers confidential is critical to adequately support the recommendations made in the comments, it is requested that the existence and general nature of the information be noted in the comments in a way which would not reveal any trade-secret data and that an individual be identified for the Committee to contact should it wish to subsequently request submission of the information.

4.2 COMMENTS ON METHODOLOGY USED IN DEVELOPING THE PRELIMINARY LIST

Comments are sought by the Committee on the methodology it has used in developing the Preliminary List. That methodology is described in Section 3 of this Background Document. Comments are specifically sought in the following areas:

a. The general approach used by the Committee in screening substances appearing on a number of existing lists of chemicals of potential hazard to health or the environment to identify those with the greatest potential for human exposure and/or environmental release. Suggestions of alternative approaches which might be considered by the Committee in preparing subsequent revisions of its recommendations are sought.

b. The various lists used by the Committee in constructing its initial listing. Commentors are requested to suggest additional sources for identification of potentially hazardous chemicals for review by the Committee.

c. Data sources for identifying drugs, food additives, pesticides, and non-commercial chemicals appearing on the initial listing.

d. Additional sources of data on production volumes, uses, environmental releases of, and exposure to chemicals.

e. The scoring and weighting factors used by the Committee to evaluate the relative levels of human exposure to and environmental release of chemicals for purposes of selecting items to be included on the Preliminary List.

Comments on the methodology used in developing the Preliminary List will, to the extent possible, be considered by the Committee in its further development of its initial recommendations of testing priorities. However, because of the statutory deadline for transmitting those recommendations, extensive modifications in approach will be considered principally by the Committee in developing procedures to be used for subsequent revisions of its recommendations.

4.3 COMMENTS ON THE CONTENT OF THE PRELIMINARY LIST

Commentors may recommend specific modifications to the list, including additions or deletions of specific substances or exceptions of substances from inclusion in a category. In order to evaluate recommended additions, the Committee desires pertinent information about the substance, its production, use, environmental release, human exposure, and its health and environmental effects. A rationale for deletions or category modification should also be presented.

In view of the Committee's statutory deadline for developing its initial testing priority recommendations, it is important that the needed information be submitted by the commentor in a form which will simplify the Committee's consideration. With this in mind, it is requested that the formats as presented in Tables 4.1 - 4.2 be followed. While commentors are encouraged to provide all the requested items, failure to do so will not jeopardize consideration of the comments. Commentors may supply additional data to support their recommendations.

4.4 COMMENTS ON TEST DATA NEEDS

The Committee also seeks comments on the needs for further testing of substances appearing on the Preliminary List. Commentors are requested to identify the substance on which they are commenting using the name as it appears on the Preliminary List and to specify the type of testing recommended by the commentor and the reasons for that recommendation. If a commentor wishes to recommend that further testing of a substance appearing on the Preliminary List is not needed, the substance should again be identified using the name as it appears on the Preliminary List and the reasons provided for the recommendation together with appropriate supporting data (such as a summary of existing test data with literature references).

Those wishing to submit comments on the relative priority for further testing of substances appearing on the Preliminary List (and other substances proposed for consideration by the commentor) are requested to provide a discussion of the reasons for their priority recommendations.

Table 4.1

Recommended Format for Proposing for Committee Consideration a Chemical Substance, Mixture, or Category Not on the Preliminary List:
(Please use separate sheet for each nomination)

RECOMMENDATION FOR ADDITION TO THE PRELIMINARY LIST FOR CONSIDERATION BY THE TSCA INTERAGENCY TEST COMMITTEE

A. Identification and Chemical/Physical Properties

1. Name and CAS Number: (Use Chemical Abstracts Service preferred name and its number if known or available)

2. Type of Substance: (Specify whether substance is a pure substance, mixture, commercial or trade-name product, or category.)

3. Additional Identifying Information:

a. For a mixture, identify the component substances (using CAS preferred names and giving CAS Registry Numbers, if known) and their proportions in the mixture.

b. For a commercial or trade-name product, identify the ingredient(s) of concern and/or impurities or contaminants of concern, using CAS preferred names and giving CAS Registry Numbers, if known.

c. For a category, provide a proposed definition of the category and identify any members of that category already appearing on the Preliminary List.

4. Chemical and Physical Properties: (Relevant data on chemical structure, molecular weight, isomers, chemical reactivity, boiling and melting points, solubility and partition coefficients, etc, may be attached).

B. Production, Use, Environmental Release, and Human Exposure

1. Production Volume: (Summarize available data on U.S. annual production volume, imports, and exports. Specify year to which data apply and indicate any anticipated trends.)

2. Uses:

a. Indicate if substance is used as a cosmetic ingredient, drug, food or food additive or pesticide.

b. Summarize other known types of uses and indicate fraction of production going to each use, if known.

3. Environmental Release

a. Summarize known data on release of substance to the environment, indicating type of operation (manufacture, use, disposal, etc.) causing release, medium (air, water, etc.) to which release occurs, total quantity released, and concentration of release.

b. Summarize known data on environmental persistence and transformations, including information on half-life and products of degradation.

c. Summarize known data on ambient environmental concentrations of substance.

4. Human Exposure:

(Summarize known data on human exposure to substance, indicating population group exposed, number of individuals exposed, route of exposure (oral, inhalation, etc.), and level and duration of exposure.)

C. Health and Environmental Effects

1. Toxicology: (Summarize known data on toxicology of substance and its metabolites for humans and experimental animals, indicating test species, route of exposure, level and duration of exposure, and types and frequencies of effects observed. Also summarize data from in vitro testing, indicating test system used and results.)

2. Epidemiology: (Summarize known data on human epidemiology of substance, indicating population exposed, route of exposure, level and duration of exposure, and types and frequencies of effects observed.)

3. Environmental Effects: (Summarize known data on adverse environmental effects of substance and its decay products or metabolites, indicating species or material affected, exposure medium, level and duration of exposure, and type and frequency of effects.)

D. Reasons for Proposing Committee Consideration of Substance

1. Basis of Concern: (Indicate whether the substance is recommended for consideration by the Committee because of evidence of substantial human exposure or substantial environmental release alone, or because of suspicion of some particular type of adverse effect on human health or the environment. In the latter case, identify the type of adverse effect suspected and explain the basis for the suspicion.)

2. Data Needed; (Identify the specific types of data which are considered to be needed to evaluate the effects of the manufacture, distribution in commerce, processing, use, and disposal of the substance on health and the environment but which are presently unavailable.)

3. Testing Recommended: (Identify any specific types of testing which are recommended to provide the needed data.)

4. Additional Information:

a. In the case of a mixture, commercial or trade-name product, indicate the reasons why it is recommended that the mixture or product be tested rather than the chemical substance(s) or contaminant(s) of concern in the mixture or product.

b. In the case of a category, indicate the reasons for recommending testing of all substances or mixtures contained within the definition of the category, rather than a limited number of specific substances or mixtures.

E. Identification of Submitter

(Provide name, organizational affiliation if any, address, and telephone number of person submitting recommendation.)

Table 4.2

Recommended Format for Proposing that the Committee Drop From Further Consideration a Chemical Substance, Mixture, or Category Appearing on the Preliminary List:

(Please use separate sheet for each subject)

RECOMMENDATION TO DELETE FROM COMMITTEE CONSIDERATION

A. Name of Substance, Mixture, or Category

(Provide the name of the chemical substance, mixture, or category proposed to be dropped from further consideration as that name appears on the Preliminary List.)

B. Reasons for Recommending Dropping from Further Consideration

(Summarize reasons for recommending that the specific chemical substance, mixture, or category not be further considered by the Committee for possible inclusion in its recommendations to the EPA Administrator. Examples of such reasons might be:

1. Substance is used exclusively as a drug and is not subject to the Toxic Substances Control Act;

2. There is no human exposure to or environmental release of the substance; or

3. The effects of the substance on human health and the environment have been adequately tested.

C. Supporting Data

(Provide data and/or references to support the reasons given above. NOTE: Data which the submitter considers to be confidential should not be submitted with comments on the Preliminary List, since all such comments will be made available for public inspection. If the submitter possesses information critical to the support of his comments on the Preliminary List for which confidentiality is claimed, the availability of such information may be identified in the submitter's public comments for possible later request by the Committee.)

D. Identification of Submitter

(Provide the name, organizational affiliation if any, address, and telephone number of the person submitting the recommendation.)

5. PROCEDURES FOR SUBMISSION OF COMMENTS

Comments on the Preliminary List should be submitted in triplicate to:

Ms. Phyllis Tucker
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, D.C. 20006

It is requested that comments on the Preliminary List be submitted no later than August 22, 1977. Comments received after that date may not be considered by the Committee in developing its initial recommendations due on or before October 1, 1977, but will be considered at a later time when the Committee reviews those recommendations for possible revision.

Copies of all comments received will be available for public inspection from 9 a.m. to 5 p.m., Monday through Friday, in Room 5020, New Executive Office Building, 726 Jackson Place, N.W., Washington, D.C.

APPENDIX A

MEMBERSHIP OF TSCA INTERAGENCY
TESTING COMMITTEE

Statutory Member Agencies

Council on Environmental Quality

Dr. Warren R. Muir, Member and Chairman

Department of Commerce

Dr. Sidney R. Galler, Member

Dr. Bernard Greifer, Alternate

Environmental Protection Agency

Dr. William M. Upholt, Member

National Science Foundation

Dr. Marvin E. Stephenson, Member and Vice Chairman

Ms. Carter Schuth, Alternate

National Institute of Environmental Health Sciences

Dr. Hans L. Falk, Member

Dr. Warren T. Piver, Alternate

National Institute of Occupational Safety and Health

Dr. Norbert P. Page, Member

Dr. Jean G. French, Alternate

National Cancer Institute

Dr. James M. Sontag, Member

Occupational Safety and Health Administration

Mr. Grover C. Wrenn, Member

Dr. James M. Vail, Alternate

Observer Agencies

Department of Defense

Dr. Seymour L. Friess

Food and Drug Administration

Dr. Allen H. Heim

Department of Interior

Mr. Charles R. Walker

U.S. Consumer Product Safety Commission

Dr. Robert M. Hehir

EPA Administrative Support Staff

Executive Secretary: (To Be Named)

Secretary: Ms. Phyllis D. Tucker

APPENDIX B

DATA SOURCES USED FOR PREPARATION OF INITIAL LIST

01 Toxic Pollutants in Point Source Water Effluent Discharge

This list of 120 chemicals and groups consists of Appendices A and C of the settlement agreement dated 7 June 1976 between the Environmental Defense Fund and EPA. It is a priority list of toxic pollutants subject to regulations through point source effluent limitation (Section 307(a)) under the Federal Water Pollution Control Act.

02 Scoring of Organic Air Compounds, June 1976, MITRE, MTR-6248

This list of 337 chemicals and groups was compiled and documented by MITRE (September 1976) under contract to EPA. The relevant factors in selecting chemicals for the list were: (1) quantity produced, (2) potential for atmospheric release, and (3) toxicological effects.

03 Final Report of NSF Workshop Panel to Select Organic Compounds Hazardous to the Environment, April 1975

This list of 80 chemicals and groups was compiled and documented by Stanford Research Institute under contract to the National Science Foundation. The list consists of those chemicals having the greatest potential for environmental release, selected from the universe of manufactured organic chemicals with the highest calculated release rates.

04 Potential Industrial Carcinogens and Mutagens

This list of 88 chemicals has been compiled by the National Center for Toxicological Research. The list is made up of industrial compounds which are potential carcinogens and/or mutagens, and which have been selected based upon available data concerning activity, use, production, and population at risk.

05 Occupational Carcinogens for Potential Regulatory Action

This list of 116 chemicals and groups was compiled by OSHA from suspected carcinogens. Selection was primarily based upon data available through the NIOSH Registry.

07 Chemicals Tested or Scheduled for Testing at the Fish-Pesticide Research Laboratory, Department of Interior

This list consists of 174 toxic chemicals which are suspected of being hazardous to fish and wildlife.

08 Substances with Chronic Effects other than Mutagenicity, Carcinogenicity or Teratogenicity: A subfile of the NIOSH Registry (Source List 13).

09 Criteria Documents Prepared or Planned by NIOSH, February 24, 1977

This list of 126 chemicals and groups consists of substances for which criteria documents have been or will be prepared and delivered to the Department of Labor. In selecting these chemicals NIOSH considered a) the number of workers exposed, b) known or suspected toxic effects, and c) physical and chemical properties.

10 Suspected Carcinogens; A Subfile of the NIOSH Registry

This is a list of 1,900 chemicals and groups which have been reported to have produced cancer in test animals. The list is included in List Source 13.

11 Suspected Mutagens; A Subfile of the NIOSH Registry

This is a list of approximately 100 chemicals and groups which have been reported to have produced mutagenic effects in test animals. This list is included in List Source 13.

12 Suspected Teratogens; A Subfile of the NIOSH Regisity

This is a list of approximately 200 chemicals and groups which have been reported to have produced teratogenic effects in test animals. The list is included in List Source 13.

13 NIOSH Registry of Toxic Effects of Chemical Substances, 1976

This list of 21,543 chemicals and groups was compiled and documented in the NIOSH Registry. Only those substances which were on lists 8, 10, 11, and 12 were considered to be priority.

17 The Ecological Impact of Synthetic Organic Compounds on Estuarine Ecosystems, September, 1976, EPA-1600/3-76-075

This list of 9 chemicals was compiled as part of a study of the impact of synthetic organic compounds on estuarine ecosystems. The effect of the 9 chemicals and a number of pesticides was analyzed and documented in the study.

18 Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes for 1976, American Conference of Government Industrial Hygienists

This list of approximately 570 chemicals and groups was compiled by NIOSH to give Threshold Limit Values for chemical substances and physical agents in the workroom environment.

19 National Occupational Hazard Survey (1972-1974)

This list of over 7,000 chemicals and other hazards has been compiled by NIOSH. These hazards are ranked according to expected amount of occupational exposure. Only the chemicals ranked among the top 500 hazards were considered to be priority chemicals.

20 Chemicals Being Tested for Carcinogenicity by the Bioassay Program, DCCP, National Cancer Institute, 1977

This list of 372 chemicals includes those which have been selected for bioassay by the National Cancer Institute.

21 EPA, Office of Toxic Substances List of Priority Toxic Chemicals, 1977

This list of 162 chemicals was compiled by EPA/OTS from the NIOSH list of carcinogens (List Source 10).

22 A Study of Industrial Data on Candidate Chemicals for Testing, EPA Contract # 68-01-4109, November, 1976

This list of 650 chemicals and groups was compiled by Stanford Research Institute as part of the contracted effort to produce List Source 03. Production and calculated release data are included.

24 General List of Problem Substances, Environmental Contaminants Committee, Ottawa, Ontario, Canada, 1977

This list of 160 chemicals and groups of environmental concern was compiled by the Canadian government.

OTHER LISTS WHICH WERE REFERENCED:

06 Survey of Compounds which have been tested for Carcinogenic Activity (Index, 1970-1971), NIH/HEW

This list of 3,634 chemicals and groups is a cumulative index by CAS number of PHS 149 volumes through 1970-1971.

14 Research Project to Gather and Analyze Data and Information on Chemicals that Impact Man and the Environment

This list of 3,200 chemicals and groups was compiled and documented by Stanford Research Institute under contract to the National Cancer Institute. The documentation included total production and calculated release data for each of the chemicals for nine hazard categories: (1) over-the-counter drugs, (2) prescription drugs, (3) cosmetics, (4) trade-sales paint, (5) water pollutants, (6) air pollutants, (7) soap and detergents, (8) pesticide residues in food, and (9) intentional food additives.

16 Other Potential Modifiers of the Stratosphere, 1975

This list of 41 chemicals was compiled by the National Institute of Environmental Health Sciences from the universe of 275 manufactured chemicals ranked by release rate used by by Stanford Research Institute in preparing Source List 03. This list included potential modifiers of the stratosphere and related information.

23 EPA/Office of Research and Development, Chemical Production

Set of production data compiled on approximately 140 chemicals.

APPENDIX C

CHEMICAL SCORES

A. The four factors described in the text were scored in the following manner.

Factor 1: Production.

Annual production data was collected from a number of sources:

a. Scoring of Organic Air Compounds (Source List 02 of Appendix B)

b. A Study of Industrial Data on Candidate Chemicals for Testing (Source List 22 of Appendix B)

c. EPA/OR&D Chemical Production (Source List 23 of Appendix B)

d. Synthetic Organic Chemicals, United States Production and Sale, 1975, United States International Trade Commission

e. Chemical Economics Handbook, 1975 Stanford Research Institute

f. Chemical and Engineering News: Vol. 52, No. 51, 12/23/74; Vol. 55, No. 18, 5/2/77; Vol. 55, No. 24, 6/13/77.

The Factor 1 score assigned to a chemical was the common logarithm of the highest annual production value (in millions lbs/yr) found in any of the above sources. If an annual production value was not available for a chemical in any of these sources, a Factor 1 score of -0.5229 (corresponding to an assumed annual production of 300,000 pounds) was assigned.

Factor 2: Quantity Released into the Environment

The quantity of chemical released into the environment was scored on a scale from 0 to 3 as follows:

Score	Release Rate	Estimate Based on Uses
3	> 30%	Mostly dispersive uses
2	3 to 30%	Some dispersive uses
1	.3 to 3%	Few dispersive uses; or primarily industrial chemical with propensity for leaks
0	< .3%	Well contained industrial chemical

Estimates of release rates for a number of chemicals are given in Source List 22 of Appendix B. For those chemicals for which no release rates were given, an estimate was made on the basis of the dispersive nature of the chemical's uses as indicated in the above table.

An estimate was also made of the chemical's persistence according to the following table:

Score	Lifetime	Example
3	Infinite (years or greater)	Compounds of metals, freons, CCl_4, N_2O, SF_6, many polymers
2	Order of 1 year	Tetrachloroethylene, flame retardants, phthalate esters, silicones
1	Order of a few days	SO_2
0	Hours or less	Reactive compounds

The sum of the scores of the two sub-factors, release quantity and persistence, was taken as an indication of the environmental burden posed by the chemical.

Factor 3: Occupational Exposure

The source of data on occupational exposure to chemicals was the National Occupational Hazard Survey (NOHS) conducted by the National Institute for Occupational Safety and Health. In this survey, the approximately 7000 most common hazards occurring in the working place were rank ordered. To achieve

an occupational exposure score with a range and direction similar to those of the other factors, the Factor 3 score assigned to a chemical was 3.8451 minus the common logarithm of its rank on the NOHS list. (3.8451 is the logarithm of 7000.) Chemicals which did not appear on the NOHS list were given a score of zero, equivalent to having been ranked number 7000 on the survey.

Factor 4: Extent to Which the General Population is Exposed

Four individual sub-factors were scored and then summed to measure the general population exposure. The four sub-factors were scored as follows:

SUB-FACTOR 1 Number of people exposed to the chemical (exclusive of a workplace environment)

Score	No. of People	Example
3	$\geq 20 \times 10^6$	Widely used household products (e.g. wearing apparel, shoe polish, certain surface coatings, common paints and their solvents, common plastics and their additives, detergents, furnishings and carpets, wood cleaning products, refrigerants, natural gas, nonfood packaging materials, flame proofers) General air, food and water contaminants Automotive products (e.g. gasoline and additives, rubber, surface coatings, plasticizers, flame proofers) Products used widely in commercial buildings (mostly same as household, including commercial cleaners, disinfectants)
2	$2\text{-}20 \times 10^6$	Less widely used household products (e.g. uncommon paints, specialty apparel such as baby wear, hobby uses, arts and crafts, tools) Regional air and water pollutants, farm chemicals (exclusive of pesticides)

1	$0.2\text{-}2 \times 10^6$	Specialty hobbies(e.g. photography), specialty products Neighborhood air and water pollutants from local industries
0	$< 2 \times 10^5$	Chemical intermediates rarely found outside the workplace

SUB-FACTOR 2 Frequency of exposure (to the typical person considered in ranking number of people exposed under Sub-factor 1)

Score	Frequency	Examples
3	Daily or more often	General air, food and water contaminants, household products in regular use, material used inside automobiles, clothing
2	Weekly	Hobby crafts, household products used intermittently (e.g. certain cleaners), bleaches, gardening products
1	Monthly	Dry cleaning, certain solvents, house maintenance (e.g. polishes, certain cleaning agents), automobile maintenance
0	Yearly or less frequently	Application of household paints, specialty products

SUB-FACTOR 3 Exposure Intensity. This is intended to reflect the total amount of material that comes into contact with the average or typical person whose exposure has been scored under sub-factors 1 and 2. In scoring this factor, one should consider the number of grams of the material that makes contact with the average person in the course of one exposure (daily, weekly, monthly or yearly as scored in sub-factor 2). Thus, for example, a trace pollutant may lead to exposure of a typical person of the order of micrograms per day every day; use of a specialty solvent might lead to exposure of a typical person of the order of grams per day once a year; these would be scored 3,0 and 0,3 respectively on sub-factors 2 and 3.

Score	Intensity	Examples
3	High (10^{-1} or more grams per exposure)	Plastics, fabrics, surface coatings, volatile solvents in closed spaces, liquids contacting skin, high concentration gases
2	Medium (10^{-1} to 10^{-2} g per exposure)	Fabric additives, solvents in open spaces or outdoors, dusts, solutes, transitory exposures to vapors or aerosols
1	Low (10^{-3} to 10^{-4} per exposure)	Low level indoor exposure, volatile substances from home furnishings and building materials (e.g. plasticizers, flame proofers), low volatility solvents, pigments
0	Very low (less than 10^{-5} g per exposure)	Environmental contaminants (low level air, food and water contaminants), monomers in polymers

SUB-FACTOR 4 Penetrability. This is a measure of the material that comes into contact with a person (whether by dermal, inhalation, or ingestion exposure) and that is expected to be absorbed into the body (even transitorily) with potential for interaction with cells.

3	High (10-100% absorption)	Organic solvents in liquid, mist or aerosol form, vapors and gases if likely to be soluble in body fluids, respirable-sized particles, surface active agents, materials known to have high dermal systemic toxicity.
2	Medium (1-10% absorption)	Solvents with low volatitily and/or larger molecules, organic materials in water solution, waxes and polishes, coarse dusts

1	Low (0.01 - 1% absorption)	Certain solids, dermal exposure to most inorganic materials in water solution
0	Negligible (<0.01% absorption)	Polymers, metals

B. In making the judgments called for in scoring Factors 2 and 4 above, some knowledge of the chemical's uses was necessary. Use information was collected from the following sources:

a. The Condensed Chemical Dictionary, Ninth Edition, Hawley, Van Nostrand Reinhold Company, New York, 1977.

b. The Merck Index, Ninth Edition, Merck and Company, Inc., Rahway N.J., 1976.

c. Faith, Keyes, and Clark's Industrial Chemicals, Lowenheim and Moran, Fourth Edition, J. Wiley and Sons, Inc., New York, 1975.

d. Chemical Marketing Reporter, Schnell Publishing Co., Inc., New York.

e. Encyclopedia of Chemical Technology, Kirk-Othmer, Inter-Science Publishing Company, New York, 1972.

APPENDIX D

Rank Ordering the Chemicals

A linear weighting scheme was used to rank order the chemicals. The rank of the j^{th} chemical, r_j, was computed by the formula:

$$r_j = \sum_{i=1}^{4} w_i \frac{f_{ij}}{s_i} ,$$

where w_i is the weight assigned to the i^{th} factor,

f_{ij} is the i^{th} factor score of the j^{th} chemical,

and s_i is a scaling factor chosen to normalize the assigned scores.

The four scaling factors employed were:

s_1 = log 20,850 = 4.3191; 20,850 million lb/yr being the maximum of all Factor 1 chemical production quantities.

s_2 = 6; 6 being the maximum of all Factor 2 environmental release scores.

s_3 = 3.8451 - log 3 = 3.3680; third being the highest NOHS rank among the scored chemicals. (Ranked first and second on the NOHS list were continuous noise and mineral oil, the former not being a chemical hazard and the latter not being among the scored chemicals.)

s_4 = 12; 12 being the maximum of all Factor 4 general population exposure scores.

This choice of s_1, s_2, s_3, s_4, guaranteed that $\left|\frac{f_{ij}}{s_i}\right| \leq 1$ for all i and j, and furthermore, that for each i, $\left|\frac{f_{ij}}{s_i}\right| = 1$ for at least one chemical j.

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