Here is the mapping I used to go from the explicit species to the GEOS-Chem Species (C. Wiedinmyer, 20 June 2014)

COMPOUND NAMES	GEOS-CHEM Multiplication Factor*	GEOS-CHEM Species
1,1-Dimethylhydrazine ($C_2H_8N_2$)	1	IGNORE
1,2,3-Trimethylbenzene (C_9H_{12})	1	TMB
1,2,4-Trimethylbenzene (C_9H_{12})	1	TMB
1,2-Butadiene (C_4H_6)	1	PRPE
1-,2-Butyne (C_4H_6)	1	ALK4
1,2-Dichloroethane ($C_2H_4Cl_2$)	1	AROM
1,2-Dihydronaphthalene ($C_{10}H_{10}$)	1	AROM
1,3,5-Trimethylbenzene (C_9H_{12})	1	AROM
1,3-Butadiene (C_4H_6)	1	PRPE
1,3-Butadiyne (C_4H_2)	1	ALK4
1,3-Cyclopentadiene (C_5H_6)	1	PRPE
1,3-Dihydronaphthalene ($C_{10}H_{10}$)	1	AROM
1-,3-Methyl Indene ($C_{10}H_{10}$)	1	AROM
1,4-Diethylbenzene ($C_{10}H_{14}$)	1	AROM
1-Butanol ($C_4H_{10}O$)	1	ROH
1-Butene (C_4H_8)	1.333333333	PRPE
1-Butenylbenzene ($C_{10}H_{14}$)	1	AROM
1-Decene ($C_{10}H_{20}$)	1	PRPE
1-Ethyl-2-Methylbenzene (C_9H_{12})	1	AROM
1-Ethyl-3-,4-Methylbenzene (C_9H_{12})	1	AROM
1-Heptene (C_7H_{14})	2	PRPE
1-Hexene (C_6H_{12})	2	PRPE
1-Methyl-1-Propenylbenzene ($C_{10}H_{12}$)	1	AROM
1-Methylcyclohexane (C_7H_{14})	1	ALK4
1-Methylcyclohexene (C_7H_{12})	1	PRPE
1-Methylcyclopentane (C_6H_{12})	1	ALK4
1-Methylcyclopentene (C_6H_{10})	1	PRPE
1-Methylpyrazole ($C_4H_6N_2$)	1	IGNORE
1-Methylpyrrole (C_5H_7N)	1	IGNORE
1-Nonene (C_9H_{18})	2	PRPE
1-Octene (C_8H_{16})	2	PRPE
1-Pentene (C_5H_{10})	1.666666667	PRPE
1-Propanol	0.75	ROH
1-Propenylbenzene (C_9H_{10})	1	AROM
1-Undecene ($C_{11}H_{22}$)	1	PRPE
2,2-Dimethylbutane (C_6H_{14})	1	ALK4
2,2-Dimethylpropane (C_5H_{12})	1	ALK4
2,3-Butanedione ($C_4H_6O_2$)	1	MEK
2,3-Dihydro-1,4-Dioxin ($C_4H_6O_2$)	1	IGNORE
2,3-dihydrofuran	1	FUR
2,4-dimethyl-furan	2	FUR
2,5-dimethyl-furan	2	FUR
2+3-Methylpentane (C_6H_{14})	1	ALK4

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COMPOUND NAMES	GEOS-CHEM Multiplication Factor*	GEOS-CHEM Species
2-BuONO2	1	R4N2
2-Butanone (MEK)	1	MEK
2-Butyl Nitrate ($C_4H_9NO_3$)	1	R4N2
2-ethylfuran	2	FUR
2-Ethylpyrazine ($C_6H_8N_2$)	1	IGNORE
2-Ethyltoluene (C_9H_{12})	1	AROM
2-Hexanone ($C_6H_{12}O$)	1.5	MEK
2-Me-butane	1.25	ALK4
2-Methyl-1-Butene (C_5H_{10})	1.666666667	PRPE
2-Methyl-1-Pentene (C_6H_{12})	2	PRPE
2-Methyl-2-Butenal (C_5H_8O)	1	RCHO
2-Methyl-2-Butene (C_5H_{10})	1.666666667	PRPE
2-Methylbutanal ($C_5H_{10}O$)	1	RCHO
2-Methylfuran (C_5H_6O)	1	FUR
2-Methylpropene (C_4H_8)	1	PRPE
2-Methylstyrene (C_9H_{10})	1	AROM
2-Pentanone ($C_5H_{10}O$)	1.25	MEK
2-Pentyl Nitrate ($C_5H_{11}NO_3$)	1	R4N2
2-Propenylbenzene (C_9H_{10})	1	AROM
3-Carene ($C_{10}H_{16}$)	1	CARENE
3-Ethyltoluene (C_9H_{12})	1	AROM
3-Hexanone ($C_6H_{12}O$)	1.5	MEK
3-Methyl-1-Butene (C_5H_{10})	1.666666667	PRPE
3-Methyl-2-Butanone ($C_5H_{10}O$)	1	MEK
3-Methyl-2-Butyl Nitrate ($C_5H_{11}NO_3$)	1	R4N2
3-Methyl-3-buten-2-one (C_5H_8O)	1	MEK
3-Methylbutanal ($C_5H_{10}O$)	1	RCHO
3-Methylfuran (C_5H_6O)	1	FUR
3-Methylstyrene (C_9H_{10})	1	AROM
3-Pentanone ($C_5H_{10}O$)	1.25	MEK
3-Pentyl Nitrate ($C_5H_{11}NO_3$)	1	R4N2
4-Carene ($C_{10}H_{16}$)	1	CARENE
4-Ethyltoluene (C_9H_{12})	1	AROM
4-methyl-1-pentene	2	PRPE
4-Methylstyrene (C_9H_{10})	1	AROM
Acetaldehyde (CH_3CHO)	1	ALD2
Acetic Acid (CH_3COOH)	1	ACTA
Acetol (hydroxyacetone)	1	HAC
Acetone (C_3H_6O)	1	ACET
Acetonitrile (CH_3CN)	1	CH3CN
Acetylene (C_2H_2)	1	C2H2
Acrolein (C_3H_4O)	1	RCHO
Acrylic Acid ($C_3H_4O_2$)	1	RCOOH

Here is the mapping I used to go from the explicit species to the GEOS-Chem Species (C. Wiedinmyer, 20 June 2014)

COMPOUND NAMES	GEOS-CHEM Multiplication Factor*	GEOS-CHEM Species
Acrylonitrile (C_3H_3N)	1	IGNORE
alpha-Methylstyrene (C_9H_{10})	1	AROM
Benzaldehyde (C_7H_6O)	1	RCHO
Benzene (C_6H_6)	1	BENZ
Benzenenitrile (C_7H_5N)	1	IGNORE
benzofuran	1	FUR
butadiene	1	PRPE
Butanals	1	MEK
Butanols	1	ROH
Butenyne (C_4H_4)	1	PRPE
C_{10} Aromatics	1	AROM
$C_{10}H_{14}$ non-aromatic (e.g., hexahydronaphthalene)	1	ALK4
C_{11} Aromatics	1	AROM
C_6 Carbonyls	1	MEK
C_8 Aromatics	1	XYLE
C_9 Aromatics	1	AROM
Camphene ($C_{10}H_{16}$)	1	MTPO
Carbon suboxide (C_3O_2)	1	IGNORE
Carbonyl Sulfide (OCS)	1	IGNORE
Chloromethane (CH_3Cl)	1	IGNORE
cis-1,3-Hexadiene (C_6H_{10})	1	PRPE
cis-1,3-Pentadiene (C_5H_8)	1	PRPE
cis-2-Butene (C_4H_8)	1.333333333	PRPE
cis-2-Hexene (C_6H_{12})	2	PRPE
cis-2-Pentene (C_5H_{10})	1.666666667	PRPE
Crotonaldehyde (C_4H_6O)	1	RCHO
Cyclohexene (C_6H_{10})	1	PRPE
Cyclohexene (C_6H_{12})	1	PRPE
cyclopentadiene	1.666666667	PRPE
Cyclopentane (C_5H_{10})	1	ALK4
cyclopentanol	1.25	ROH
Cyclopentanone (C_5H_8O)	1	MEK
Cyclopentene (C_5H_8)	1.666666667	PRPE
Cyclopentenedione ($C_5H_4O_2$)	1	MEK
Cyclopentenone (C_5H_6O)	1	MEK
Dibromomethane (CH_2Br_2)	1	CH2BR2
Dichlorodifluoromethane (CCl_2F_2)	1	IGNORE
Dimethyl Sulfide (C_2H_6S)	1	DMS
Divinylacetylene (C_6H_6)	1	PRPE
D-Limonene ($C_{10}H_{16}$)	1	LIMO
Ethane (C_2H_6)	1	C2H6
Ethanol (CH_3CH_2OH)	1	EOH
Ethyl Formate ($C_3H_6O_2$)	1	MEK

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COMPOUND NAMES	GEOS-CHEM Multiplication Factor*	GEOS-CHEM Species
Ethyl Nitrate ($C_2H_5NO_3$)	1	IGNORE
Ethyl Xylene (isomer 1, $C_{10}H_{14}$)	1	AROM
Ethyl Xylene (isomer 2, $C_{10}H_{14}$)	1	AROM
Ethylbenzene (C_8H_{10})	1	ETBENZ
Ethylchloride (C_2H_5Cl)	1	IGNORE
Ethylene (C_2H_4)	1	C2H4
Ethylstyrene ($C_{10}H_{12}$)	1	AROM
Ethynyl Benzene (C_8H_6)	1	XYLE
Formaldehyde (HCHO)	1	CH2O
Formic Acid (HCOOH)	1	HCOOH
Furaldehydes	1	FUR
Furan (C_4H_4O)	1	FUR
Furfural (C5H4O2)	1	FUR
gamma-Terpinene ($C_{10}H_{16}$)	1	MTPO
Glycolaldehyde ($C_2H_4O_2$)	1	GLYC
Glycolic Acid ($C_2H_4O_3$)	1	RCOOH
Glyoxal	1	GLYX
Heptadiyne (isomer 1, C_7H_8)	1	ALK4
Heptadiyne (isomer 2, C_7H_8)	1	ALK4
Heptanals (C7H14O)	2.3	RCHO
Heptane (C_7H_{16})	1.75	ALK4
Heptanones (C7H14O)	2.333333333	MEK
Hexanal ($C_6H_{12}O$)	1	RCHO
Hexanals (C6H12O)	2.333333333	RCHO
Hexenes (sum of 3 isomers, C_6H_{12})	2	PRPE
Hexenyne (C_6H_8)	1	PRPE
Hydrogen Cyanide (HCN)	1	HCN
i-Butane (C_4H_{10})	1	ALK4
i-Butene (C_4H_8)	1.333333333	PRPE
Indane (C_9H_{10})	1	AROM
Indene (C_9H_8)	1	AROM
i-Pentane (C_5H_{12})	1.25	ALK4
i-Propyl Nitrate ($C_3H_7NO_3$)	1	R4N2
Isobutylbenzene ($C_{10}H_{14}$)	1	AROM
Isocyanic Acid (HNCO)	1	IGNORE
isohexanes	1.5	ALK4
iso-Limonene ($C_{10}H_{16}$)	1	LIMO
Isoprene (C_5H_8)	1	ISOP
Isopropylbenzene (C_9H_{12})	1	AROM
Methacrolein (C_4H_6O)	0.666666667	MACR
Methanol (CH_3OH)	0.25	MOH
Methyl Acetate ($C_3H_6O_2$)	1	MEK
Methyl Acrylate ($C_4H_6O_2$)	1	MEK
Methyl Bromide (CH_3Br)	1	CH3BR

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COMPOUND NAMES	GEOS-CHEM Multiplication Factor*	GEOS-CHEM Species
Methyl Butanoate ($C_5H_{10}O_2$)	1	MEK
Methyl Chloride (CH3Cl)	1	IGNORE
Methyl Cyclopentadiene (isomer 1, C_6H_8)	1	PRPE
Methyl Cyclopentadiene (isomer 2, C_6H_8)	1	PRPE
Methyl Diazine (isomer 1, $C_5H_6N_2$)	1	IGNORE
Methyl Diazine (isomer 2, $C_5H_6N_2$)	1	IGNORE
Methyl Diazine (isomer 3, $C_5H_6N_2$)	1	IGNORE
Methyl Ethyl Ketone (C_4H_8O)	1	MEK
Methyl Formate ($C_2H_4O_2$)	1	MEK
Methyl Iodide (CH_3I)	1	CH3I
Methyl Methacrylate ($C_5H_8O_2$)	1	MEK
Methyl Nitrate (CH_3ONO_2)	1	MNO3
Methyl Propanal (C_4H_8O)	1	RCHO
Methyl Propanoate ($C_4H_8O_2$)	1	MEK
Methyl Vinyl Ether (C_3H_6O)	1	PRPE
Methyl Vinyl Ketone (C_4H_6O)	1	MVK
Methylglyoxal	1	MGLY
Methyl-n-Propylbenzene (isomer 1, $C_{10}H_{14}$)	1	AROM
Methyl-n-Propylbenzene (isomer 2, $C_{10}H_{14}$)	1	AROM
Monoterpenes ($C_{10}H_{16}$)	1	MTPO
Myrcene ($C_{10}H_{16}$)	1	MTPO
Naphthalene ($C_{10}H_8$)	1	AROM
n-Butanal (C_4H_8O)	1	RCHO
n-Butane (C_4H_{10})	1	ALK4
n-Butylbenzene ($C_{10}H_{14}$)	1	AROM
n-Decane ($C_{10}H_{22}$)	1	ALK4
n-Hexane (C_6H_{14})	1.5	ALK4
Nitromethane (CH_3NO_2)	1	IGNORE
Nitrous Acid (HONO)	1	HNO2
n-Octane (C_8H_{18})	1.66666	ALK4
Nonadiene (C_9H_{16})	1	PRPE
Nonane (C_9H_{20})	1.75	ALK4
n-Pentane (C_5H_{12})	1.25	ALK4
n-Propyl Nitrate ($C_3H_7NO_3$)	1	R4N2
n-Propylbenzene (C_9H_{12})	1	AROM
n-Undecane ($C_{11}H_{24}$)	2	ALK4
Octadiene (C_8H_{14})	1	PRPE
Octanones	2	MEK
octenes	2.666666667	PRPE
Other C_6H_{10} (isomer_1)	1	PRPE
Other C_6H_{10} (isomer_2)	1	PRPE
Other C_6H_{10} (isomer_3)	1	PRPE
Other C_6H_{10} (isomer_4)	1	PRPE

Here is the mapping I used to go from the explicit species to the GEOS-Chem Species (C. Wiedinmyer, 20 June 2014)

COMPOUND NAMES	GEOS-CHEM Multiplication Factor*	GEOS-CHEM Species
Other C_6H_{10} (isomer_5)	1	PRPE
Other substituted furans	1	FUR
p-Cymene ($C_{10}H_{14}$)	1	MTPO
Pentadiene isomer (C_5H_8)	1	PRPE
Pentanones (C5H10O)	1	MEK
Pentenone (C_5H_8O)	1	MEK
Pentenyne isomers (C_5H_6)	1	PRPE
Phenol (C_6H_5OH)	1	AROM
Polycyclic Aromatic Hyrdocarbons	1	AROM
Propadiene (C_3H_4)	0.75	PRPE
Propanal (C_3H_6O)	0.5	RCHO
Propane (C_3H_8)	1	C3H8
Propanenitrile (C_3H_5N)	1	IGNORE
Propenenitrile (C_3H_3N)	1	IGNORE
Propylene (C_3H_6)	1	PRPE
Propyne (C_3H_4)	1	ALK4
Pyrrole (C_4H_5N)	1	IGNORE
Pyruvic Acid ($C_3H_4O_3$)	1	RCOOH
Resorcinol ($C_6H_6O_2$)	1	ROH
Sesquiterpenes ($C_{15}H_{24}$)	1	SESQ
Styrene (C_8H_8)	1	STYR
Terpinolene ($C_{10}H_{16}$)	1	MTPO
Tetrahydrofuran (C4H8O)	1	FUR
Toluene ($C_6H_5CH_3$)	1	TOLU
trans-1,3-Hexadiene (C_6H_{10})	1	PRPE
trans-1,3-Pentadiene (C_5H_8)	1	PRPE
trans-2-Butene (C_4H_8)	1.333333333	PRPE
trans-2-Pentene (C_5H_{10})	1.666666667	PRPE
Trichloromethane ($CHCl_3$)	1	IGNORE
Xylenes (C_8H_{10})	1	XYLE
α-Pinene ($C_{10}H_{16}$)	1	APINE
β-Pinene ($C_{10}H_{16}$)	1	BPINE

* This is the the number of times you multiply the moles of explicit species to get the moles of GEOS-chem species. For example, if you had 2 moles of 1-Butene, this would be multiplied by 1.333 to get 2.6666 moles of PRPE