

# Appendix 1. Summary table of genetic and related effects of process streams and products from petroleum refining

Nonmammalian systems										Mammalian systems																														
Prokaryotes		Lower eukaryotes		Plants			Insects			<i>In vitro</i>						<i>In vivo</i>																								
										Animal cells			Human cells			Animals			Humans																					
D	G	D	R	G	A	D	G	C	R	G	C	A	D	G	S	M	C	A	T	I	D	G	S	M	C	A	T	I	D	G	S	M	C	DL	A	D	S	M	C	A
<b>Process streams</b>																																								
+																																								
<b>Crude oils</b>																																								
± <sup>b,c</sup>																																								
+ <sup>1,c</sup> - <sup>1,c</sup> - <sup>1</sup> ? - <sup>1</sup>																																								
<b>Gasoline<sup>d</sup></b>																																								
- <sup>1,e</sup> + <sup>1,f</sup> + ± <sup>1,g</sup> + <sup>1</sup> - <sup>1</sup> - <sup>1</sup> + -																																								
<b>Jet fuel</b>																																								
- + <sup>1</sup> + <sup>1</sup>																																								
<b>Diesel fuel</b>																																								
η <sup>h</sup> - <sup>1,i</sup> - <sup>1</sup> - <sup>1</sup> + <sup>1</sup>																																								
<b>Fuel oils:</b>																																								
<b>Residual fuel oil</b>																																								
- <sup>1,j</sup> - <sup>1,j</sup> + <sup>1,k</sup>																																								
<b>Kerosene-type fuel oil</b>																																								
- <sup>1</sup> - <sup>1</sup> - <sup>1</sup>																																								
<b>Fuel oil No. 2</b>																																								
+ <sup>l</sup> + <sup>1</sup> + <sup>1,m</sup> - <sup>1,m</sup> + <sup>1</sup>																																								

<sup>1</sup>One study

<sup>a</sup>Positive effects were observed in sewage-treatment workers in an oil refinery; <sup>b</sup>extracts of crude oils; <sup>c</sup>neutral aromatic fractions of crude oil; <sup>d</sup>unleaded unless otherwise specified; <sup>e</sup>DMSO extract of unleaded gasoline and residue from evaporation of unleaded gasoline; <sup>f</sup>leaded gasoline; <sup>g</sup>positive in one study using a DMSO extract and a residue from evaporation; <sup>h</sup>different results found with samples of different diesel fuels; <sup>i</sup>aliphatic and aromatic fractions; <sup>j</sup>bunker fuel; <sup>k</sup>B-class heavy oil; <sup>l</sup>including one study with an aromatic fraction; <sup>m</sup>two aromatic fractions of fuel oil No. 2