

**ANNEXURE 4****Gap analysis of hazard criteria specified by GHS with criteria specified by SABS 0265 and SABS 0228 / IMDG Code**

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
<b>PHYSICAL HAZARDS</b>						
<b>1. Explosive</b>	Explosives are classified into one of six divisions.	<b>Explosives</b>	A substance that complies with the UN test and criteria for explosives. Only two risks are identified:  i) Risk of explosion by shock, friction, fire or other sources of ignition  ii) Extreme risk of explosion by shock, fire or other sources of ignition	<b>Class 1: Explosives</b>	Substance or articles are classified into class 1 and six divisions.	SABS 0228 fully complies with GHS with regard to the allocation into six divisions  SABS 0265 reference to the UN test and criteria infers allocation to six divisions but subsequent labelling only differentiates two divisions
2. Division 1.1	Substances, mixtures and articles which have a mass explosion hazard (i.e. one which affects the entire load virtually instantaneously).			Division 1.1	This division consists of substances and articles that present a mass explosion hazard.	Complies with GHS
3. Division 1.2	Substance, mixtures and articles which have a projection hazard but not a mass explosion hazard.			Division 1.2	This division consists of substances and articles that present a projection hazard but not a mass explosion hazard.	Complies with GHS
4. Division 1.3	Substance, mixtures and articles which have a fire hazard and either a minor blast			Division 1.3	This division consists of substances and articles that:	Complies with GHS

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	<p>hazard or a minor projection hazard or both but not a mass explosion hazard:</p> <p>i) combustion of which gives rise to considerable radiant heat; or</p> <p>ii) which burn one after another, producing minor blast or projection effects or both.</p>				<p>i) Present a fire hazard and either a minor blast hazard and/or a minor projection hazard but not a mass explosion hazard.</p> <p>ii) In the event of ignition or initiation during transport, give rise to considerable heat, or burn one after the other producing a minor blast and/or a minor projection effect.</p>	
5. Division 1.4	<p>Substance, mixtures and articles which present no significant hazard; substances, mixture and articles which present only a small hazard in the event of ignition or initiation. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire shall not cause virtually instantaneous explosion of almost the entire contents of the package.</p>			Division 1.4	<p>This division consists of substances and articles that:</p> <p>i) Present no significant hazard</p> <p>ii) Present only a small hazard in the event of ignition or initiation during transport. The effect is largely confined within the package and no projection of fragments of appreciable size or range is to be expected. An external fire will not cause almost spontaneous explosion of virtually the entire contents of the package.</p>	Complies with GHS
6. Division 1.5	<p>Very insensitive substances or mixtures which have a mass explosion hazard; substances or mixtures which have a mass explosion hazard but are so</p>			Division 1.5	<p>This division consists of very insensitive substances that have a mass explosion hazard but are so insensitive that there is very little</p>	Complies with

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	insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions.				probability of initiation or of transition from burning to detonation under normal conditions of transport.	
7. Division 1.6	Extremely insensitive articles which do not have a mass explosion hazard; articles which contain only extremely insensitive detonating substances or mixtures and which demonstrate a negligible probability of accidental initiation or propagation.			Division 1.6	This division consists of extremely insensitive articles that do not have a mass explosion hazard and the probability of accidental initiation or propagation is negligible.	Complies with GHS
<b>8. Flammable Gases</b>	A flammable gas is classified in one of two categories.			<b>Class 2: Gases</b>	Gases divided into Division 2.1 Flammable gases, Division 2.2 Non-flammable non-toxic gases and Division 2.3 Toxic gases	
9. Category 1	Gases which at 20°C and a standard pressure of 101.3 kPa:  i) are ignitable when in a mixture of 13% or less by volume in air; or  ii) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.	<b>Extremely flammable substances and preparations</b>	A gas that at 20°C and pressure of 101.3 kPa is ignitable in a mixture of 13% or less; or has a flammability range with air of at least 12 percentage points.	Division 2.1: Flammable gases	Flammable gases are gases that at a temperature of 20°C and at a standard pressure of 101.3 kPa:  i) Are ignitable in a mixture of 13% or less (by volume) with air; or  ii) Have a flammable range with air of at least 12% regardless of the lower flammable limit.	Complies with GHS
10. Category 2	Gases other than those of category 1, which at 20°C and a standard pressure of 101.3 kPa, have a flammable range					Category not currently used

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	while mixed with air.					
<b>11. Flammable Aerosols</b>	<p>Aerosols are considered for classification as flammable if they contain any component that is classified as flammable according to the GHS criteria, i.e. flammable liquids, flammable gases, and flammable solids.</p> <p>A flammable aerosol is classified in one of two categories on the basis of its components, its chemical heat of combustion, foam test, ignition distance and enclosed spray test.</p>			<b>Class 2: Gases,</b>		
12. Category 1	<p>Flammable aerosol: Contains <math>\geq 85\%</math> flammable components and has a heat of combustion <math>\geq 30</math> kJ/g.</p> <p>Spray aerosol: Ignition occurs at a distance <math>\geq 75</math>cm.</p> <p>Foam aerosol: In the flametest, the flame height <math>\geq 20</math>cm and the flame duration <math>\geq 2</math> seconds or flame height <math>\geq 4</math>cm and the flame duration <math>\geq 7</math>seconds.</p>			Division 2.1: Flammable gases	The contents of an aerosol dispenser are regarded as flammable if the receptacle contains $> 45\%$ (by mass) or $> 250$ g of flammable components. Flammable components are gases that are flammable in air at normal pressures or substances and preparations in liquid form that have a closed-cup flash point $\leq 100^\circ\text{C}$ .	<p>Criteria not compliant with GHS</p> <p>GHS criteria based on heat of combustion, foam test, ignition distance and enclosed spray test.</p> <p>SABS 0228 based on percentage flammable components and closed cup flash point</p>
13. Category 2	Spray aerosol: Heat of combustion $< 20$ kJ/g or ignition occurs at a distance $\geq 15$ cm or enclosed ignition test time equivalent					Category currently not used

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	<p><math>\leq 300</math> seconds/m<sup>3</sup> or deflagration density <math>\leq 300</math> g/m<sup>3</sup>.</p> <p>Foam aerosol: In the flame test, the flame height <math>\geq 4</math> cm and the flame duration <math>\geq 2</math> sec</p>					
<b>14. Oxidising Gases</b>	An oxidising gas is classified in a single category for this class. It includes any gas which may generally, by providing oxygen, cause or contribute to the combustion of other material more than air does.	<b>Oxidising substances and preparations</b>	<p>An oxidising substance or preparation, although not necessarily combustible, can either by yielding oxygen or by similar processes, increase the risk and intensity of fire in other materials with which it comes into contact.</p> <p>An oxidising gas is a gas that has an oxygen index <math>\geq 21</math>.</p>	<b>Class2: Gases</b> Division 2.2: Non-flammable, non-toxic gases	Oxidising gases that can generally by providing oxygen cause or contribute to the combustion of other material to a greater extent than air does.	Complies with GHS
<b>15. Gases Under Pressure</b>	Gases are classified according to their physical state when packaged in one of four groups.			Class 2: Gases	<i>Permanent gas:</i> A gas that at a temperature of 50°C has a vapour pressure exceeding 300 kPa or is completely gaseous at a temperature of 20°C and at a standard pressure of 101.3 kPa.	
16. Compressed gas	A gas which when packaged under pressure is entirely gaseous at -50°C; including all gases with a critical temperature $\leq -50$ °C.			Compressed gas	A gas that when packaged under pressure for transport is entirely gaseous at a temperature of 20°C. A gas with a critical temperature of $\leq -50$ °C.	<p>Gases with critical temperatures of <math>\leq 50</math>°C are compliant.</p> <p>Temperature at which a gas is entirely gaseous under pressure specified as 50°C for GHS and 20°C in SABS 0228</p>

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17. Liquefied gas	A gas which when packaged under pressure is partially liquid at temperatures above -50°C. A distinction is made between:  i) High pressure liquefied gas: a gas with a critical temperature between -50°C and +65°C.  ii) Low pressure liquefied gas: a gas with a critical temperature above +65°C.			Liquefied gas	A gas that when packaged under pressure for transport can become partially liquid at a temperature of 20°C. This includes high pressure liquefied gas with a critical temperature between -50°C and 65°C and low pressure liquefied gas with a critical temperature above 65°C.	Complies with GHS
18. Refrigerated liquefied gas	A gas when packaged is made partially liquid because of its low temperature.			Refrigerated liquefied gas	A gas that when packaged under pressure for transport is partially liquid due to its low temperature.	Complies with GHS
19. Dissolved gas	A gas which when packaged under pressure is dissolved in a liquid phase solvent.			Dissolved gas	A gas that when packaged under pressure for transport is dissolved in a liquid phase solvent.	Complies with GHS
<b>20. Flammable Liquids</b>	A flammable liquid is classified in one of four categories for this class according to the flash point and initial boiling point of the liquid.			<b>Class 3: Flammable liquids</b>	Three levels of hazard are defined for packaging purposes based on the flash points and initial boiling point:	
21. Category 1	Flash point < 23°C and initial boiling points ≤ 35°C	<b>Extremely flammable substances and preparations</b>	A liquid with an initial boiling point ≤ 35°C	Packing group 1	Initial boiling point ≤ 35°C  Closed-cup flash point not specified	Not compliant with GHS  Flash point is not specified in SABS 0228 and SABS 0265
22. Category 2	Flash point < 23°C and initial boiling points > 35°C	<b>Highly flammable substances</b>	A liquid has a closed-cup flash point of < 23°C and a boiling point > 35°C.	Packing group 2	Closed-cup flash point < 23°C and an initial boiling point > 35°C	Complies with GHS

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		<b>and preparations</b>				
23. Category 3	Flash point $\geq 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$	<b>Flammable substances and preparations</b>	Closed-cup flash point is in the range of $23^{\circ}\text{C}$ to $60.5^{\circ}\text{C}$ and boiling point $> 35^{\circ}\text{C}$ .	Packing group 3	Closed-cup flash point $\leq 23^{\circ}\text{C}$ $\leq 60.5^{\circ}\text{C}$ and an initial boiling point $> 35^{\circ}\text{C}$ .	Not compliant with GHS  Upper limit of flash point is $60.5^{\circ}\text{C}$ in SABS 0228 and SABS 0265
24. Category 4	Flash point $>60^{\circ}\text{C}$ and $\leq 93^{\circ}\text{C}$					Category currently not used
<b>25. Flammable Solids</b>	A flammable solid is classified in one of two categories for this class.  Explosive substances and preparations desensitised with water or alcohol or by dilution may be treated differently from explosives for regulatory purposes, e.g. transport.	<b>Highly flammable substances and preparations</b>	A solid is easily ignited by external source, is readily combustible and liable to cause or contribute to a fire through friction.  A desensitised explosive that can explode if not diluted sufficiently  On contact with air is liable to emit flammable gases at a minimum rate of 1l/kg/h	<b>Class 4: Flammable solids, substances liable to spontaneous combustion, substances that on contact with water emit flammable gases</b>  Division 4.1: Flammable solids, self reactive substances and solid desensitised explosives	Solids that cause fire by friction.  The packing group are assigned on the basis of the burning rate test:  Solid desensitised explosives are explosive substances that are wetted with water or alcohols or dilutes to form a homogenous solid mixture to suppress their explosive properties.	Basis for criteria for SABS 0265 not consistent with GHS
26. Category 1	Burning rate test:  Substances or mixtures other			Packing group 2:	Solids - burning time $< 45$ seconds, the burning rate is $> 2.2$ mm/s and the flame	SABS 0228 complies with GHS

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	<p>than metal powders:</p> <p>i) wetted zone does not stop fire and</p> <p>ii) burning time &lt; 45 seconds or burning rate &gt; 2.2 mm/second</p> <p>Metal powders: Burning time ≤ 5 minutes.</p>				<p>passes the wetted zone</p> <p>Metal powders and alloys – burning time ≤ 5 minutes</p>	
27. Category 2	<p>Burning rate test:</p> <p>Substances or mixtures other than metal powders:</p> <p>i) wetted zone stops the fire for at least 4 minutes and</p> <p>ii) burning time &lt; 45 seconds or burning rate &gt; 2.2 mm/sec</p> <p>Metal powders: Burning time &gt; 5 minutes and ≤ 10 minutes.</p>			Packing group 3	<p>Solids - burning time &lt; 45 seconds burning rate is &gt; 2.2 mm/s and the wetted zone stops the flame propagation for at least 4 minutes</p> <p>Metal powders and alloys – burning time &lt; 5 minutes ≤ 10 minutes</p>	Complies with GHS
<b>28. Self Reactive Substances</b>	<p>Self reactive substances and mixtures are classified in one of seven categories for this class.</p> <p>Criteria are described below</p>			<p><b>Class 4:</b>  <b>Flammable solids, substances liable to spontaneous combustion, substances that on contact with water emit flammable gases</b></p> <p>Division 4.1:</p>	<p><i>Self reactive substances</i> are classified in seven types in accordance with the degree of danger that they present: Criteria described below</p>	

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Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
				Flammable solids, self reactive substances and solid desensitised explosives		
29. Category A	Any self reacting substance or mixture which can detonate or deflagrate rapidly, as packaged.			Type A	Any substance that can detonate or deflagrate rapidly when packaged for transport.	Complies with GHS
30. Category B	Any self reactive substance or mixture possessing explosive properties and which, as packaged, neither detonates nor deflagrates rapidly, but is liable to undergo a thermal explosion in that package.			Type B	Any substance that has explosive properties and that when packaged for transport, neither detonates nor deflagrates rapidly but is liable to undergo a thermal explosion in the package.	Complies with GHS
31. Category C	Any self reactive substance or mixture possessing explosive properties when the substance or mixture as packaged cannot detonate or deflagrate rapidly or undergo a thermal explosion.			Type C	Any substance that has explosive properties but that cannot detonate or deflagrate rapidly or undergo thermal explosion when packaged for transport.	Complies with GHS
32. Category D	Any self reactive substance or mixture which in laboratory testing:  i) detonates partially, does not deflagrate rapidly and shown no violent effect when heated under confinement; or  ii) does not detonate at all, deflagrates slowly and shows no violent effect			Type D	Any substance that during laboratory testing and when packaged for transport:  i) detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement.  ii) Does not detonate at all, deflagrates slowly and shows no violent effect	Complies with GHS

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Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	when heated under confinement; or  iii) does not detonate or deflagrate at all and shows a medium effect when heated under confinement.				when heated under confinement.  iii) Does not detonate or deflagrate at all and shows a medium effect when heated under confinement.	
33. Category E	Any self reactive substance or mixture which in laboratory testing neither detonates nor deflagrates at all and shows low or no effect when heated under confinement.			Type E	Any substance that during laboratory testing neither detonates nor deflagrates and shows little or no effect when heated under confinement.	Complies with GHS
34. Category F	Any self reactive substance or mixture which in laboratory testing neither detonates in the cavitated state nor deflagrates at all and shows only low or no effect when heated under confinement, as well as low or no explosive power.			Type F	Any substance that during laboratory testing neither detonates in the cavitated state nor deflagrates, shows little or no effect when heated under confinement and shows low or no explosive power.	Complies with GHS
35. Category G	Any self reactive substance or mixture which in laboratory testing neither detonates in the cavitated state nor deflagrates at all and shows only low or no effect when heated under confinement nor any explosive power, provided it is thermally stable (self accelerating decomposition temperature is 60°C to 75°C for a 50kg package), and for liquid mixtures a diluent having a boiling point of not less than 150°C is used for			Type G	Any substance that during laboratory testing neither detonates in the cavitated state nor deflagrates and shows no effect when heated under confinement and shows no explosive power. Substances may be exempted from classification provided the formulation is thermally stable (self accelerating decomposition temperatures of 60°C to 75°C for a 50kg package) and any diluent has a boiling point of	Complies with GHS

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	desensitisation. If the mixture is not thermally stable or diluent having a boiling point less than 150°C is used for desensitisation, the mixture is defined as Type F.				at least 60°C and a closed-cup flash point of not less than 5°C, and a boiling point at least 50°C higher than the control temperature of the self reactive substance.	
<b>36. Pyrophoric Liquids</b>	A pyrophoric liquid is classified in a single category for this class. The liquid ignites within 5 minutes when added to an inert carrier and exposed to air, or it ignites or chars a filter paper on contact with air within 5 minutes.			<b>Class 4: Flammable solids, substances liable to spontaneous combustion, substances that on contact with water emit flammable gases</b> Division 4.2: Substances liable to spontaneous combustion	Pyrophoric substances are substances that even in small quantities ignite within 5 minutes of their coming into contact with air.	Complies with GHS
<b>37. Pyrophoric Solids</b>	A pyrophoric solid is classified in a single category for this class. The solid ignites within 5 minutes of coming into contact with air.			<b>Class 4: Flammable solids, substances liable to spontaneous combustion, substances that on contact with water emit flammable gases</b>	Pyrophoric substances are substances that even in small quantities ignite within 5 minutes of their coming into contact with air.	Complies with GHS

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Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
				Division 4.2: Substances liable to spontaneous combustion		
<b>38. Self Heating Substances</b>	A self heating substance or mixture is classified in one of two categories for this class.  Criteria are described below			<b>Class 4: Flammable solids, substances liable to spontaneous combustion, substances that on contact with water emit flammable gases</b> Division 4.2: Substances liable to spontaneous combustion	Self heating substances are substances that on contact with air and without energy supply are liable to self heating. These substances will ignite only in large amounts (several kilograms) and after a long time. Substances are assigned to two packing groups:  Criteria are described below	
39. Category 1	A positive result is obtained in a test using a 25 mm sample cube at 140°C.			Packing group 2	A positive result is obtained in a test using a 25 mm specimen cube at 140°C.	Complies with GHS
40. Category 2	i) A positive result is obtained in a test using a 100 mm sample cube at 140°C and the substance or mixture is to be packed in packages with a volume of more than 3 m <sup>3</sup> ; or  ii) A positive result is obtained in a test using a 100 mm sample cube at 140°C and			Packing group 3	i) A positive result is obtained in a test using a 100 mm specimen cube at 140°C and a negative result is obtained using a 25 mm specimen cube at 140°C and the substance is to be transported in packages with a capacity > 3 m <sup>3</sup> .	Complies with GHS

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	<p>a negative result is obtained in a test using a 25 mm cube sample at 140°C, a positive result is obtained in a test using a 100 mm sample cube at 120°C and the substance or mixture is to be packed in packages with a volume of more than 450 litres; or</p> <p>iii) A positive result is obtained in a test using a 100 mm sample cube at 140°C and a negative result is obtained in a test using a 25 mm cube sample at 140°C and a positive result is obtained in a test using a 100 mm sample cube at 100°C.</p>				<p>ii) A positive result is obtained in a test using a 100 mm specimen cube at 140°C and a negative result is obtained using a 25 mm specimen cube at 140°C, a positive result is obtained in the additional test using a 100 mm specimen cube at 120°C and the substance is to be transported in packages with a capacity &gt; 450l.</p> <p>iii) A positive result is obtained in a test using a 100 mm specimen cube at 140°C and a negative result is obtained using a 25 mm specimen cube at 140°C, and a positive result is obtained using a 100 mm specimen cube at 100°C.</p>	
<b>41. Substances which in contact with water emit flammable gases</b>	<p>A substance or mixture which in contact with water emit flammable gases are solid or liquid substances or mixtures which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities. They are classified in one of three categories.</p> <p>Criteria are described below</p>			<b>Class 4 Flammable solids, substances liable to spontaneous combustion, substances that on contact with water emit flammable gases</b>	<p>A substance is classified as a water reactive substance when:</p> <p>Spontaneous ignition takes place</p> <p>There is an evolution of flammable gas at a rate &gt; 1 l/kg of the substance per hour.</p> <p>Three packing groups are assigned:</p>	

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				Division 4.3: Substances that on contact with water, emit flammable gases	Criteria are described below	
42. Category 1	Any substance or mixture which reacts vigorously with water at ambient temperatures and demonstrates generally a tendency for the gas produced to ignite spontaneously or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is equal to or greater than 10 litres per kilogram of substance over any one minute.	<b>Extremely flammable substances and preparations</b>	On contact with water or damp air, it emits extremely flammable gases at a rate $\geq$ 10l/kg/min	Packing group 1	Substances that react violently with water at ambient temperature with a tendency for gas evolved to ignite spontaneously and the evolution of flammable gas is $\geq$ 10 l/kg of the substance in any minute.	Complies with GHS
43. Category 2	Any substance or mixture which reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 20 litres per kilogram of substance per hour, and which does not meet the criteria for category 1.			Packing group 2	Substances that react with water at ambient temperature at such a rate that the evolution of flammable gas is $\geq$ 20 l/kg of the substance per hour.	Complies with GHS
44. Category 3	Any substance or mixture which reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 1 litre per kilogram of substance per hour, and which does not meet	<b>Highly flammable substances and preparations</b>	On contact with water or damp air, it emits extremely flammable gases at a rate $\geq$ 1l/kg/hr	Packing group 3	Substances that react slowly with water at ambient temperature at such a rate that the evolution of flammable gas is $\geq$ 1 l/kg of the substance per hour.	Complies with GHS

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Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	criteria for categories 1 and 2.					
<b>45. Oxidising Liquids</b>	An oxidising liquid is classified in one of three categories for this class.	<b>Oxidising substances and preparations</b>	An oxidising substance or preparation, although not necessarily combustible, can either by yielding oxygen or by similar processes, increase the risk and intensity of fire in other materials with which it comes into contact.  Contains > 5% (by mass) of organic peroxides  Contains > 0.5% (by mass) of available oxygen from organic peroxide. This is estimated by comparing the oxidising potential of the gases with that of oxygen in air.	<b>Class 5: Oxidising substances and organic peroxides</b>  Division 5.1: Oxidising substances	<i>Oxidising liquids</i> are classified on the basis of its potential to increase the burning rate of burning intensity of a combustible substance or for spontaneous ignition to occur when the two are thoroughly mixed. Three packing groups are assigned:	SABS 0265 not compliant with GHS criteria
46. Category 1	Any substance or mixture which in the 1:1 mixture by mass of substance (or mixture) and cellulose tested, spontaneously ignites; or the mean pressure rise time of a 1:1 mixture by mass of substance and cellulose is less than that of a 1:1 mixture by mass of 50% perchloric acid and cellulose.			Packing group 1	The 1:1 (by mass) mixture of specimen and cellulose ignites spontaneously or the mean pressure rise of the 1:1 (by mass) mixture of specimen and cellulose is less than that of a 1:1 (by mass) mixture of 50% perchloric acid and cellulose.	Complies with GHS

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47. Category 2	Any substance or mixture which in the 1:1 mixture by mass of substance (or mixture) and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture by mass of 40% aqueous sodium chlorate solution and cellulose and the criteria for category 1 are not met.			Packing group 2	The 1:1 (by mass) mixture of specimen and cellulose exhibits a mean pressure rise time $\leq$ that of a 1:1 (by mass) mixture of 40% aqueous sodium chlorate solution and cellulose.	Complies with GHS
48. Category 3	Any substance or mixture which in the 1:1 mixture by mass of substance (or mixture) and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture by mass of 65% aqueous nitric acid and cellulose and the criteria for category 1 and 2 are not met.			Packing group 3	The 1:1 (by mass) mixture of specimen and cellulose exhibits a mean pressure rise time $\leq$ that of a 1:1 (by mass) mixture of 65% nitric acid and cellulose.	Complies with GHS
<b>49. Oxidising Solids</b>	An oxidising solid is classified in one of three categories for this class.  Criteria described below	<b>Oxidising substances and preparations</b>	Exhibits a burning time that is equal to or greater than that of reference mixture when tested in the case of solids.	<b>Class 5: Oxidising substances and organic peroxides</b>  Division 5.1: Oxidising substances	<i>Oxidising solids</i> is classified on the basis of its potential to increase the burning rate or burning intensity of a combustible substance when the two are thoroughly mixed. Three packing groups are assigned:  Criteria described below	

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50. Category 1	Any substance or mixture which in the 4:1 or 1:1 sample to cellulose ration (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:2 mixture, by mass, of potassium bromate and cellulose.			Packing group 1	The 1:1 (by mass) or 4:1 (by mass) specimen to cellulose ratio exhibits a mean burning time < the 3:2 (by mass) standard potassium bromate to cellulose ratio.	Complies with GHS
51. Category 2	Any substance or mixture which in the 4:1 or 1:1 sample to cellulose ration (by mass) tested, exhibits a mean burning time less than the mean burning time of a 2:3 mixture, by mass, of potassium bromate and cellulose and the criteria for category 1 an not met.			Packing group 2	The 1:1 (by mass) or 4:1 (by mass) specimen to cellulose ratio exhibits a mean burning time ≤ the 2:3 (by mass) standard potassium bromate to cellulose ratio.	Complies with GHS
52. Category 3	Any substance or mixture which in the 4:1 or 1:1 sample to cellulose ration (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:7 mixture, by mass, of potassium bromate and cellulose and the criteria for categories 1 and 2 are not met.			Packing group 3	The 1:1 (by mass) or 4:1 (by mass) specimen to cellulose ratio exhibits a mean burning time ≤ the 3:7 (by mass) standard potassium bromate to cellulose ratio.	Complies with GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
<b>53. Organic Peroxides</b>	<p>Not more than 1% available oxygen from the organic peroxide when containing not more than 1% hydrogen peroxide.</p> <p>Not more than 0.5% available oxygen from the organic peroxide when containing more than 1% but not more than 7% hydrogen peroxide</p> <p>Organic peroxides are classified into one of seven categories for this class.</p>	<b>Oxidising substance and preparation</b>	<p>An organic substance that contains the bivalent –O–O– structure can be considered derivatives of hydrogen peroxide where one or both of the hydrogen atoms have been replaced by organic radicals. A thermally unstable substance that undergoes exothermic self accelerating decomposition. Decomposition can result in the emission of toxic and flammable gases.</p> <p>Contains more than 5% (by mass) of organic peroxide or contains more than 0.5% (by mass) of available oxygen from the organic peroxide.</p>	<b>Class 5: Oxidising substances and organic peroxides</b>  Division 5.2: Organic peroxides	<p>An organic peroxide is considered for classification if it contains</p> <p>≤ 1% of available oxygen derived from organic peroxide and ≤ 1% of hydrogen peroxide or</p> <p>≤ 0.5% of available oxygen from organic peroxide and &gt; 1% but ≤ 7% of hydrogen peroxide.</p> <p>Organic peroxides are classified in seven types in accordance with the degree of danger that they present:</p>	SABS 0265 criteria not consistent with GHS
54. Type A	Any organic peroxide which as packaged can detonate or deflagrate rapidly.			Type A	One that can detonate or deflagrate rapidly when packaged as for transport.	Complies with GHS
55. Type B	Any organic peroxide possessing explosive properties and which as packaged neither detonates nor deflagrates rapidly but is liable to undergo a thermal explosion in that package.			Type B	One that has explosive properties and that when packaged as for transport, neither detonates nor deflagrates rapidly but is liable to undergo a thermal explosion in the package.	Complies with GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
56. Type C	Any organic peroxide possessing explosive properties when the substance or mixture as packaged cannot detonate or deflagrate rapidly or undergo a thermal explosion.			Type C	One that has explosive properties but is so packaged for transport that it cannot detonate or deflagrate rapidly or undergo a thermal explosion.	Complies with GHS
57. Type D	Any organic peroxide which in laboratory testing: i) detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement. ii) Does not detonate at all, deflagrates slowly and shows no violent effect when heated under confinement. iii) Does not detonate or deflagrate at all and shows a medium effect when heated under confinement.			Type D	One that in the laboratory testing and when packaged for transport : i) Detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement. ii) Does not detonate at all, deflagrates slowly and shows no violent effect when heated under confinement. iii) Does not detonate or deflagrate at all and shows a medium effect when heated under confinement.	Complies with GHS
58. Type E	Any organic peroxide which in laboratory testing neither detonates nor deflagrates at all and shows low or no effect when heated under confinement.			Type E	One that in the laboratory testing does not detonate or deflagrate and shows little or no effect when heated under confinement.	Complies with GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
59. Type F	Any organic peroxide which in laboratory testing neither detonates in the cav itated state nor deflagrates at all and shows only a low or no effect when heated under confinement, as well as low or no explosiv e power.			Type F	One that in laboratory testing does not detonate or deflagrate, shows little or no effect when heated under confinement and shows low or no explosiv e power.	Complies with GHS
60. Type G	Any organic peroxide which in laboratory testing neither detonates in the cav itated state nor deflagrates at all and shows only a low or no effect when heated under confinement nor any explosive power provided that it is thermally stable (self accelerating decomposition temperature is 60°C or higher for a 50 kg package) and for liquid mixtures a diluent having a boiling point of not less than 150°C is used for desensitisation. If the organic peroxide is not thermally stable or a diluent having a boiling point less than 150°C is used for desensitisation, it is defined as organic peroxide Type F.			Type G	One that in laboratory testing does not detonate or deflagrates shows no effect when heated under confinement and shows not explosiv e power. Substances are exempted from classification provided the formulation is thermally stable (self accelerating decomposition temperatures of 60°C to 75°C f or a 50kg package) and any diluent has a boiling point of at least 150°C.	Complies with GHS
<b>61. Corrosive to Metals</b>	A substance or mixture which is corrosive to metal is classified in a single category. Corrosion rate on steel or aluminium surf aces 6.25 mm per year at a test temperature of 55°C.			Class 8: Corrosiv es Packing group 3	Substances have a destructiv e effect on materials such as metals and textiles. Corrosion rate on steel or aluminium - > 6.25 mm/year at 55°C	Complies with GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
<b>HEALTH AND ENVIRONMENTAL HAZARD CRITERIA</b>						
<b>62. Acute Toxicity</b>	Chemicals can be allocated to one of five toxicity categories based on acute toxicity by oral, dermal or inhalation route according to the numeric criteria expressed as (approximate) LD <sub>50</sub> (oral or dermal) and LC <sub>50</sub> (inhalation) values.	Acute toxicity	Acute toxicity based on health effects and is classified as very toxic, toxic or harmful according to the lethal effects: Three levels of toxicity are allocated.	<b>Class 6: Toxic and infectious substances</b>  Division 6.1: Toxic substances, (including pesticides)	Acute toxicity is determined according to oral, dermal and inhalation toxicity  Toxic substances are assigned to three packing groups in accordance with the degree of toxic hazard they pose:	
63. Category 1 (Cut-off values currently used primarily by the transport sector for classification for packing groups)	Oral – 5 mg/kg body weight Dermal – 50 mg/kg body weight Gases – 100 ppmV,/4h Vapours – 0.5 (100*) mg/l/4h Dusts and mists – 0.05 mg/l/4h Untested mixtures must contain > 5% skin category 1 substances * = Test atmosphere is a vapour near gaseous phase  It is recognised that saturated vapour pressure may be used as an additional element by some regulatory systems (e.g. UN Recommendations for the Transport of Dangerous Goods)  If data for a mixture are not available then bridging principles used.	<b>Very Toxic</b>	Oral – ≤ 25 mg/kg body weight  < 100% survival at 5 mg/kg by the fixed dose procedure  Dermal – ≤ 50mg/kg body weight  Aerosols or particulates – ≤ 0.25 mg/l/4h  Gases and Vapours – ≤ 0.5 mg/l/4h  A substance or preparation shall be classified as very toxic if it contains one or more substances classified as very toxic because of the acute lethal effects. Each individual concentration shall exceed either:  i) the concentration specified in SABS 0265	Packing group 1	Oral – ≤ 5 mg/kg body weight  Dermal – ≤ 40 mg/kg body weight  Inhalation for dusts and mists - ≤ 0.5 mg/l/h (0.125mg/l/4h)  Liquids that emit toxic vapours are assigned to packing group 1 when the saturated vapour pressure of a liquid at 20°C and a pressure of 101.3 kPA is  ≥ 10 x LC <sub>50</sub> and LC <sub>50</sub> ≤ 1 000 ml/m <sup>3</sup>	Not compliant with GHS  SABS 0228 differences to GHS criteria are for:  Dermal – 50 mg/kg for GHS and ≤ 40 mg/kg for 0228  Dusts and mists – 0.05 mg/l/4h for GHS and 0.125mg/l/4h for 0228  Gases – specified in GHS but not in 0228  SABS 0265 differences:  Oral - 5 mg/kg in GHS and ≤ 25 mg/kg in 0265  Dusts and mists – 0.05 mg/l/4h in GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	If bridging principles do not apply then by additivity formula based on concentration and toxicity value of each ingredient		Annex C; ii) the concentration limits (by mass) of the ingredients classified as very toxic are $\geq 7\%$ (by mass) for solid or liquid and $\geq 1\%$ for gases.  iii) or by calculation where the sum of the quotients (percentage mass of each very toxic substance divided by the very toxic limit) is $\geq 1$			and Aerosols or particulates $\leq 0.25$ mg/l/4h in 0265  Gases -100 ppmV,/4h in GHS and $\leq 0.5$ mg/l/4h in 0265  Methodology and upper concentration limit for classification of mixtures is different  No distinction is made for inhalation toxicity between a vapour comprising a mixture of liquid and vapour and one comprising a vapour near the gaseous phase
64.		<b>Non-lethal irreversible effects after a single exposure for preparations</b>	The concentration limits for the classification of a very toxic preparation with non-lethal irreversible effects after a single exposure are either:  i) the concentration specified in SABS 0265 Annex C.  ii) the concentration limits (by mass) of the ingredients classified as toxic are $\geq 10\%$ for solids and liquids and $\geq 1\%$ for gases.			Not compliant with GHS.  GHS criteria based on administration of a single dose of substance or multiple doses  Methodology for classification of mixtures is different

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
65. Category 2	<p>Oral – 50 mg/kg body weight</p> <p>Dermal – 200 mg/kg body weight</p> <p>Gases – 500 ppmV,/4h</p> <p>Vapours – 2.0 (500*) mg/l/4h</p> <p>Dusts and mists – 0.5 mg/l/4h</p> <p>* = Test atmosphere is a vapour near gaseous phase</p> <p>It is recognised that saturated vapour pressure may be used as an additional element by some regulatory systems (e.g. UN Recommendations for the Transport of Dangerous Goods)</p> <p>If data for a mixture are not available then bridging principles used.</p> <p>If bridging principles do not apply then by additivity formula based on concentration and toxicity value of each ingredient</p>	<b>Toxic</b>	<p>Oral – &gt; 25 ≤ 200 mg/kg body weight</p> <p>&lt; 100% survival at 5 mg/kg by the discriminating dose procedure</p> <p>Dermal – &gt; 50 ≤ 400mg/kg body weight</p> <p>Aerosols or particulates – &gt; 0.25 ≤ 1 mg/l/4h</p> <p>Gases and Vapours – &gt; 0.5 ≤ 2 mg/l/4h</p> <p>A substance or preparation shall be classified as toxic if it contains one or more substances classified or regarded as toxic because of the acute lethal effects. Each individual concentration shall exceed either:</p> <p>i) the concentration specified in SABS 0265 Annex C;</p> <p>ii) the concentration limits (by mass) of the ingredients are :</p> <p>For solids and liquids: ≥ 1% &lt; 7% very toxic substances or ≥ 25% toxic substances</p> <p>For gases: ≥ 0.2% &lt; 1% very toxic</p>	Packing group 2	<p>Oral – ≤ 5 - 50 mg/kg body weight</p> <p>Dermal – &gt; 40 - 200mg/kg body weight</p> <p>Inhalation - &gt; 0.5 - 2mg/l/h (&gt; 0.125 – 0.5 mg/l/4h)</p> <p>Liquids that emit toxic vapours are assigned to packing group2 when the saturated vapour pressure of a liquid at 20°C and a pressure of 101.3 kPA ≥ LC<sub>50</sub> and LC<sub>50</sub> ≤ 3 000 ml/m<sup>3</sup></p>	<p>Not compliant with GHS</p> <p>SABS 0228 differences:</p> <p>Dermal – No lower limit in GHS and 40mg/kg specified in 0228</p> <p>Dusts and mists - No lower limit in GHS and 0.125 mg/l/4h specified in 0228</p> <p>Gases – specified in GHS but not in 0228</p> <p>SABS 0265 differences:</p> <p>Oral - 50 mg/kg in GHS and &gt; 25 ≤ 200 mg/kg in 0265</p> <p>Dermal - 200 mg/kg in GHS and &gt; 50 - ≤ 400 mg/kg in 0265</p> <p>Dusts and mists – 0.5 mg/l/4h in GHS and Aerosols or particulates &gt; 0.25 ≤ 1 mg/l/4h in 0265</p> <p>Gases - 500 ppmV,/4h in GHS and &gt; 0.5 ≤ 2 mg/l/4h</p> <p>Methodology for classification of</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			substances or $\geq 5\%$ toxic substances.  iii) or by formula where the sum of the quotients (percentage mass of each substance divided by the specified toxic limit) for each very toxic substances + for each toxic substance $\geq 1$ .			classification of mixtures is different  No distinction is made for inhalation toxicity between a vapour comprising a mixture of liquid and vapour and one comprising a vapour near the gaseous phase
66.		<b>Non-lethal irreversible effects after a single exposure for preparations</b>	The concentration limits for the classification of a toxic preparation with non-lethal irreversible effects after a single exposure are either: i) the concentration specified in SABS 0265 Annex C. ii) the concentration limits (by mass) of the ingredients classified as toxic are  For solids and liquids: $\geq 1\% < 10\%$ very toxic substances or $\geq 10\%$ toxic substances  For gases: $\geq 0.2\% < 1\%$ very toxic substances or $\geq 5\%$ toxic substances			Not compliant with GHS.  GHS criteria based on administration of a single dose of substance or multiple doses  Methodology for classification of mixtures is different

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
67.		<b>Severe effects after repeated or prolonged exposure</b>	<p>A substance or preparation is classified as toxic with serious damage to health by prolonged exposure when toxic effects are observed at levels of the order of:</p> <p>Oral <math>\leq</math> 5 mg/kg body weight/day</p> <p>Dermal <math>\leq</math> 10 mg/kg/body weight/day</p> <p>Inhalation <math>\leq</math> 0.025 mg/l/6h</p> <p>The concentration limits for the classification of a toxic preparation with severe effects after repeated or prolonged exposure are:</p> <ul style="list-style-type: none"> <li>li) the concentration specified in SABS 0265 Annex C.</li> <li>ii) the concentration limits (by mass) of the ingredients classified as toxic are</li> </ul> <p>For solids and liquids: <math>\geq</math> 10% toxic substances</p> <p>For gases: <math>\geq</math> 5% toxic substances</p>	<b>Class 2: Gases</b> Division 2.3: Toxic gases	<p>Toxic gases are gases that:</p> <p>Are known to be so toxic or corrosive to humans that they pose a health hazard.</p> <p>Are presumed to be toxic or corrosive to humans because they have an inhalation toxicity (LC<sub>50</sub>) that is <math>\leq</math> 5 000 ml/m<sup>3</sup>.</p>	<p>Not compliant with GHS.</p> <p>GHS criteria based on administration of a single dose of substance or multiple doses</p> <p>Methodology for classification of mixtures is different</p>
68. Category 3	<p>Oral – 300 mg/kg body weight</p> <p>Dermal – 1 000 mg/kg body weight</p>			Packing group 3 solids	<p>Oral – <math>&gt;</math> 50 - 200mg/kg body weight</p> <p>Dermal – <math>&gt;</math> 200 – 1 000/kg body weight</p>	<p>Not compliant with GHS</p> <p>SABS 0228</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>Gases – 2 500 ppmV,/4h</p> <p>Vapours – 10 (2 500*) mg/l4h</p> <p>Dusts and mists – 1.0 mg/l/4h</p> <p>* = Test atmosphere is a vapour near gaseous phase</p> <p>It is recognised that saturated vapour pressure may be used as an additional element by some regulatory systems (e.g. UN Recommendations for the Transport of Dangerous Goods)</p> <p>If data for a mixture are not available then bridging principles used.</p> <p>If bridging principles do not apply then by additivity formula based on concentration and toxicity value of each ingredient</p>				<p>body weight</p> <p>Inhalation dusts and mists- &gt; 2 – 10 mg/l/h (0.125 – 2.5 mg/l/4h)</p> <p>Oral – &gt; 50 – 500 mg/kg body weight</p> <p>Dermal – &gt; 200 – 1 000/kg body weight</p> <p>Inhalation - &gt; 2 - 10/l/h (0.125 – 2.5 mg/l/4h)</p> <p>Liquids that emit toxic vapours are assigned to packing group 3 when the saturated vapour pressure of a liquid at 20°C and a pressure of 101.3 kPA <math>\geq 0.2 \times LC_{50}</math> and <math>LC_{50} \leq 5\ 000\ ml/m^3</math></p>	<p>differences:</p> <p>Distinction made between solids and liquids in 0228</p> <p>Oral - 300 mg/kg in GHS and &gt; 50 - 200mg/kg for solids and &gt; 50 – 500 mg/kg for liquids in 0228</p> <p>Dusts and mists - 1.0 mg/l/4h in GHS and 0.125 – 2.5 mg/l/4h for solids and liquids in 0228</p> <p>Gases - 2 500 ppmV,/4h in GHS but not specified in 0228</p> <p>No distinction is made for inhalation toxicity between a vapour comprising a mixture of liquid and vapour and one comprising a vapour near the gaseous phase</p>
69. Category 4	<p>Oral – 2 000 mg/kg body weight</p> <p>Dermal – 2 000 mg/kg body weight</p> <p>Gases – 5 000 ppmV/4h</p> <p>Vapours – 20 (5 000*) mg/l/4h</p>	<b>Harmful</b>	<p>Oral → 200 ≤ 2 000 mg/kg body weight</p> <p>100% survival at 50 mg/kg by the fixed dose procedure</p> <p>&lt; 100% survival at 500 mg/kg by the fixed dose</p>			<p>Not compliant with GHS</p> <p>SABS 0265 differences:</p> <p>Oral – Lower limit of 200 mg/kg would be categorised as</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>Dusts and mists – 5 mg/l/4h</p> <p>* = Test atmosphere is a vapour near gaseous phase</p> <p>If data for a mixture are not available then bridging principles used.</p> <p>If bridging principles do not apply then by additivity formula based on concentration and toxicity value of each ingredient</p>		<p>procedure</p> <p>Dermal – &gt; 400 ≤ 2 000mg/kg body weight</p> <p>Aerosols or particulates – &gt; 1 ≤ 5 mg/l/4h</p> <p>Gases and Vapours – &gt; 2 ≤ 20 mg/l/4h</p> <p>A substance or preparation shall be classified as harmful if it contains one or more substances classified or regarded as harmful because of the acute lethal effects. Each individual concentration shall exceed either:</p> <p>i) the concentration specified in SABS 0265 Annex C;</p> <p>ii) the concentration limits (by mass) of the ingredients are :</p> <p>For solids and liquids: ≥ 0.1% &lt; 1% very toxic substances or ≥ 3% &lt; 25 toxic substances or ≥ 25% harmful substances.</p> <p>For gases: ≥ 0.02% &lt; 0.2% very toxic substances or ≥ 0.5% &lt; 5% toxic substances or ≥ 5%</p>			<p>Category 3 in GHS</p> <p>Vapours – Lower limit of 2 mg/l/4h would be categorised as Category 3 in GHS</p> <p>Methodology for classification of mixtures is different</p> <p>No distinction is made for inhalation toxicity between a vapour comprising a mixture of liquid and vapour and one comprising a vapour near the gaseous phase</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			<p>harmful substances.</p> <p>iii) or by formula where the sum of the quotients (percentage mass of each substance divided by the specified harmful toxic limit) for each very toxic substance + for each toxic substance + harmful substances <math>\geq 1</math>.</p>			
<p>70. Category 5</p> <p>(Chemicals which are relatively low acute toxicity but which under certain circumstances may pose a hazard to vulnerable populations. Tests may indicate significant effect in humans)</p>	<p>Oral – 5 000 mg/kg body weight</p> <p>Dermal – 5 000 mg/kg body weight</p> <p>Gases – 5 000 pp, per volume</p> <p>Vapours – 5 000 mg/l</p> <p>Dusts and mists – 5 000 mg/l</p> <p>Range – 2 000 to 5 000 mg/kg body weight</p>					Category currently not used
<b>71. Skin Corrosion</b>	<p>A single <i>corrosion</i> category is provided. For those authorities wanting more than one designation for corrosivity, up to three sub-categories are provided, namely 1A, 1B and 1C.</p>	<b>Corrosive</b>	<p>A substance or preparation is classified as corrosive if it contains one or more substances classified or regarded as corrosive. Two categories of hazard are allocated.</p> <p>A pH value of <math>\leq 2</math> and <math>\geq 11.5</math> can be used as a guideline for possible corrosive properties.</p>	<b>Class 8: Corrosives</b>	<p>Corrosive substances are allocated to packing groups based on experience and the length of time of contact necessary to produce full thickness destruction of the intact skin tissue. Substances that do not cause full thickness destruction of the intact skin are still considered corrosive substances owing to their potential to corrode metal surfaces.</p>	<p>Three categories are allocated in SABS 0228 and two in SABS 0265</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
72. Category 1: Corrosive  (applies to all authorities)	<p>Substances and tested mixtures: Produces destruction of the skin tissue in at least 1 of 3 tested animals after exposure up to 4 hour duration and an observation period of 14 days.</p> <p>≥ 1% acid with pH ≤ 2</p> <p>≥ 1% base with pH ≥ 11.5</p> <p>Has a pH of ≤ 2.0 or ≥ 11.5 including the alkali/acid reserve.</p> <p>For untested mixtures:</p> <p>Where substances can be added, the sum of the concentrations of corrosive substances in the mixture is ≥ 5%.</p> <p>For mixtures where substances cannot be added if it contains a category 1 ingredient ≥ 1% or ≥ 3% category 2 ingredient</p>	<b>Corrosive</b>	<p>When applied to healthy intact skin causes full thickness destruction of the skin tissue within 4 hours, or if this result can be predicted</p> <p>A substance or preparation is classified as corrosive if it contains one or more substances classified or regarded as very corrosive or if each individual concentration exceeds either:</p> <p>i) The concentration specified in SABS 0265 Annex C</p> <p>ii) Or where not specified the concentration (by mass) limits of:</p> <p>For solids and liquids ≥ 5% &lt; 10% of very corrosive substances or ≥ 10% corrosive substances</p> <p>For gases ≥ 0.2% &lt; 1% of very corrosive substances or ≥ 5% corrosive substances</p> <p>iii) By formula where the sum of the quotients (percentage of each corrosive substance divided by the corrosive</p>	Packing group 3	<p>Exposure - &gt; 1 hour -- ≤ 4 hours</p> <p>Observation - ≤ 14 days</p>	<p>Complies with GHS for tested substances and mixtures</p> <p>For untested mixtures methodology specified in SABS 0265 is different and concentration limits different</p> <p>Methodology for classifying untested substances not specified in SABS 0228</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			limit specified for that substance) or very corrosive substances + corrosive substances $\geq 1$ .			
73. Sub-category 1A	<p>Exposure - <math>\leq 3</math> minutes</p> <p>Observation - <math>\leq 1</math> hour</p> <p>For untested mixtures:</p> <p>Where substances can be added, the sum of the concentrations of 1A substances in the mixture is <math>&lt; 5\%</math>.</p>	<b>Very corrosive</b>	<p>When applied to healthy intact skin causes full thickness destruction of the skin tissue within 3 minutes, or if this result can be predicted.</p> <p>A substance or preparation is classified as very corrosive if it contains one or more substances classified or regarded as very corrosive or if each individual concentration exceeds either:</p> <p>The concentration specified in SABS 0265 Annex C</p> <p>Or where not specified the concentration (by mass) limits of:</p> <p>For solids and liquids <math>\geq 10\%</math> of very corrosive substances</p> <p>For gases <math>\geq 1\%</math> of very corrosive substances</p> <p>By formula where the sum of the quotients (percentage of each very corrosive substance divided by the very</p>	Packing group 1	<p>Full thickness destruction of intact skin:</p> <p>Exposure time - <math>\leq 3</math> min</p> <p>Observation - <math>\leq 1</math> hour</p>	<p>Complies with GHS for tested substances and mixtures</p> <p>For untested mixtures methodology specified in SABS 0265 is different and concentration limits different</p> <p>Methodology for classifying untested substances not specified in SABS 0228</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			corrosive limit specified for that substance) $\geq 1$ .			
74. Sub-category 1B	<p>Exposure - &gt; 3 minutes -- <math>\leq 1</math> hour</p> <p>Observation - <math>\leq 14</math> days</p> <p>Where substances can be added, the sum of the concentrations of 1A + 1B substances in the mixture is <math>\geq 5\%</math>.</p>			Packing group 2	<p>Exposure - &gt; 3 minutes -- <math>\leq 1</math> hour</p> <p>Observation - <math>\leq 14</math> days</p>	<p>Complies with GHS for tested substances and mixtures</p> <p>For untested mixtures methodology specified in SABS 0265 is different and concentration limits different</p> <p>Methodology for classifying untested substances not specified in SABS 0228</p>
75. Sub-category 1C	<p>Exposure - &gt; 1 hour -- <math>\leq 4</math> hours</p> <p>Observation - <math>\leq 14</math> days</p> <p>Where substances can be added, the sum of the concentrations of 1A + 1B + 1C substances in the mixture is <math>\geq 5\%</math>.</p>	<b>Corrosive</b>	<p>When applied to healthy intact skin causes full thickness destruction of the skin tissue within 4 hours, or if this result can be predicted.</p> <p>A substance or preparation is classified as corrosive if it contains one or more substances classified or regarded as very corrosive or if each individual concentration exceeds either:</p> <p>i) The concentration specified in SABS 0265 Annex C</p> <p>ii) Or where not specified</p>	Packing group 3	<p>Exposure - &gt; 1 hour -- <math>\leq 4</math> hours</p> <p>Observation - <math>\leq 14</math> days</p>	<p>Complies with GHS for tested substances and mixtures</p> <p>For untested mixtures methodology specified in SABS 0265 is different and concentration limits different</p> <p>Methodology for classifying untested substances not specified in SABS 0228</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			the concentration (by mass) limits of:  For solids and liquids $\geq 5\% < 10\%$ of very corrosive substances or $\geq 10\%$ corrosive substances  For gases $\geq 0.2\% < 1\%$ of very corrosive substances or $\geq 5\%$ corrosive substances  iii) By formula where the sum of the quotients (percentage of each corrosive substance divided by the corrosive limit specified for that substance) or very corrosive substances + corrosive substances $\geq 1$ .			
<b>76. Skin Irritation</b>	A single irritant category is provided. An additional mild irritant category (category 3) is available for those authorities that want to have more than one skin irritant category (e.g. pesticides).  Criteria described below					
77. Category 2: Irritant  (applies to all authorities)	For substances and tested mixtures:  i) Mean value of $\geq 2.3 - < 4.0$ for erythema/eschar or for oedema in at least 2 of 3	<b>Irritants</b>	When applied to healthy intact skin for up to 4 hours causes significant inflammation that is still present 24 hours or more after the exposure period.			Not compliant with GHS  SABS 0265 mean value of $\geq 2$ with no upper limit

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>tested animals from gradings of 24, 48 and 72 hours after patch removal or, if reactions are delayed, from grades on 3 consecutive days after the onset of skin reactions; or</p> <p>ii) Inflammation that persists to the end of the observation period normally 14 days in at least 2 animals; or</p> <p>iii) Where there is pronounced variability of response among animals, with very definite positive effects related to chemical exposure in a single animal but less than the criteria above.</p> <p>For untested mixtures:</p> <p>i) Where substances can be added, the sum of the concentrations of corrosive substances in the mixture is <math>\geq 1\%</math> but <math>\leq 5\%</math>;</p> <p>ii) the sum of the concentration of irritant substances is <math>\geq 10\%</math>;</p> <p>iii) the sum of (10 x concentration of corrosive ingredients) + (the concentration of irritant ingredients) is <math>\geq 10\%</math>.</p> <p>iv) For mixtures where</p>		<p>after the exposure period.</p> <p>The mean value of the score for either erythema and eschar formation or oedema formation in two or more animals tested is <math>\geq 2</math> for reading times of 24h, 48h and 72h.</p> <p>A substance or preparation is classified as a skin irritant if it contains one or more substances classified or regarded as a skin irritant. The individual concentration of each substance shall exceed either:</p> <p>i) The concentration specified in SABS 0265 Annex C</p> <p>ii) Or where not specified the concentration (by mass) of</p> <p>For solids or liquids <math>\geq 1\% &lt; 5\%</math> very corrosive substances, or <math>\geq 5\% &lt; 10\%</math> corrosive substances, or <math>\geq 5\% &lt; 10\%</math> severe eye irritant or <math>\geq 20\%</math> skin irritant substances</p> <p>For gases <math>\geq 0.02\% &lt; 0.2\%</math> very corrosive substances, or <math>\geq 0.5\% &lt; 5\%</math> corrosive</p>			<p>upper limit</p> <p>Methodology for classifying untested mixtures is different</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	substances cannot be added if it contains a ingredient $\geq 3\%$ .		<p>&lt; 5% corrosive substances, or <math>\geq 0.5\%</math> &lt; 5% severe eye irritant or <math>\geq 5\%</math> skin irritant substances</p> <p>iii) By calculation where the sum of the quotients (percentage of each substance divided by the skin irritant limit) for each very corrosive substance + each corrosive substance + each skin irritant substance <math>\geq 1</math>.</p>			
78. Category 3: Mild irritant (applies to only some authorities)	<p>For substances and tested mixtures, mean value of <math>\geq 1.5</math> - &lt; 2.3 for erythema/eschar or for oedema from gradings in at least 2 of 3 tested animals from grades at 24, 48 and 72 hours after patch removal or, if reactions are delayed, from grades on 3 consecutive days after the onset of skin reactions.</p> <p>For untested mixtures:</p> <p>i) Where substances can be added, the sum of the concentrations of corrosive substances in the mixture is <math>\geq 1\%</math> but <math>\leq 10\%</math>;</p> <p>ii) The sum of (10 x concentration of corrosive</p>					Category currently not used

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>ingredients) + (the concentration of irritant ingredients) is <math>\geq 1\%</math> but <math>\leq 10\%</math>.</p> <p>iii) The sum of (10 x concentration of corrosive ingredients) + (the concentration of irritant ingredients) + (the concentration of mild irritant substances) is <math>\geq 10\%</math>.</p> <p>iv) For mixtures where substances cannot be added if it contains an ingredient <math>\geq 10\%</math>.</p>					
<b>79. Serious Eye Damage/ Eye Irritation</b>	Substances are categorised as Category 1 where irreversible effects are observed on the eye and Category 2 where reversible effects are observed. Some authorities may want to distinguish between Category 2A and 2B.	<b>Irritants</b>				
80. Category 1: Irreversible eye effects	<p>For substances and tested mixtures:</p> <p>i) At least in one animal effects on the cornea, iris or conjunctiva that are not expected to reverse or have fully reversed within an observation period of normally 21 days; and/or</p> <p>ii) At least in 2 of 3 tested animals, a positive response of corneal opacity</p>	<b>Severe eye irritant</b>	<p>A substance or preparation is classified as a severe eye irritant if severe ocular lesions occur in the eye of the test animal within 72 hours after exposure and persist for at least 24 hours.</p> <p>Ocular lesions are severe if the following are valid:</p> <p>i) The values of the scores for each type of</p>			<p>Not compliant with GHS</p> <p>SABS 0265 differences:</p> <p>Iris lesion mean value is 2 for 2 out of 3 animals tested</p> <p>Methodology for classifying untested mixtures is different with different</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>≥ 3 and/or iritis &gt; 1.5 calculated as the mean scores following gradings at 24, 48 and 72 hours after installation of the test material.</p> <p>iii) pH extremes of &lt; 2.0 and &gt; 11.5, including buffering capacity.</p> <p>For untested mixtures:</p> <p>i) Where substances can be added the sum of the concentrations of substances classified as Category 1 corrosive to the skin and/or eye in the mixture is ≥ 3%</p> <p>ii) Where substances cannot be added if it contains an ingredient ≥ 1%.</p>		<p>lesion calculated for all the animals tested at the reading times of 24 h, 48 h and 72 h are any of the following:</p> <p>-Cornea opacity ≥ 3</p> <p>- Iris lesion ≥ 1.5</p> <p>ii) If the test has been conducted on 3 animals, the lesion on 2 or more animals have any of the following:</p> <p>- Cornea opacity ≥ 3</p> <p>- Iris lesion = 2</p> <p>iii) Irreversible coloration of the cornea and iris is caused</p> <p>iv) Proved to be severe by practical experience.</p> <p>A preparation is regarded as a severe eye irritant if it contains one or more substances classified or regarded as an irritant. The individual concentration of each substance shall exceed either:</p> <p>i) The concentration specified in SABS 0265 Annex C</p> <p>ii) Or where not specified</p>			concentration limits

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			the concentration (by mass) of  For solids or liquids $\geq$ 5% very corrosive substances, or $\geq$ 10% corrosive substances, or $\geq$ 10% severe eye irritant  For gases $\geq$ 0.2% very corrosive substances, or $\geq$ 5% corrosive substances, or $\geq$ 5% severe eye irritant  iii) By calculation where the sum of the quotients (percentage of each substance divided by the severe eye irritant limit) for each irritant substance $\geq$ 1.			
81. Category 2 and 2A: Irritating to the eye; reversible effects	For substances and tested mixtures:  At least in 2 of 3 tested animals, a positive response of corneal opacity $\geq$ 1 and/or iritis $\geq$ 1 and/or conjunctival redness $\geq$ 2 and/or conjunctival oedema $\geq$ 2 calculated as the mean scores following gradings at 24, 48 and 72 hours after installation of the test material and which fully reverses within an observation period of normally 21 days.	<b>Eye irritant</b>	A substance or preparation is classified as an eye irritant if significant ocular lesions occur in the eye of the test animal within 72 hours after exposure and persist for at least 24 hours.  Ocular lesions are significant if the mean value of the scores at the reading times of 24 h, 48h and 72 h for each type of lesion calculated are:			Not compliant with GHS  SABS 0265 differences:  Cornea opacity  Iris lesion  Redness of conjunctivae  Methodology and concentration limits for untested substances

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>For untested mixtures:</p> <p>i) Where substances can be added, the sum of the concentrations of Category 1 skin and/or eye substances in the mixture is <math>\geq 1\%</math> but <math>\leq 3\%</math>.</p> <p>ii) The sum of the concentrations of eye irritant substances is <math>\geq 10\%</math>.</p> <p>iii) The sum of (10 x concentration of skin and/or eye category 1 substances) + (the concentration of eye irritants) is <math>\geq 10\%</math>.</p> <p>iv) Where substances cannot be added, the sum of the concentration of irritant ingredients is <math>\geq 3\%</math>.</p>		<p>i) for all the animals tested are:</p> <ul style="list-style-type: none"> <li>- Cornea opacity <math>\geq 2 &lt; 3</math></li> <li>- Iris lesion <math>\geq 1 \leq 1.5</math></li> <li>- Redness of conjunctivae <math>\geq 2.5</math></li> <li>- Oedema of conjunctivae <math>\geq 2</math></li> </ul> <p>ii) If the test has been conducted on 3 animals, the lesion equivalent to none or more of the mean values given below, calculated separately for each animal, is observed in 2 or more animals:</p> <ul style="list-style-type: none"> <li>- Cornea opacity <math>\geq 2 &lt; 3</math></li> <li>- Iris lesion <math>\geq 1 \leq 2</math></li> <li>- Redness of conjunctivae <math>\geq 2.5</math></li> <li>- Oedema of conjunctivae <math>\geq 2</math></li> </ul> <p>iii) Proved by practical experience.</p> <p>A preparation is regarded as a severe eye irritant if it</p>			substances

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			contains one or more substances classified or regarded as an irritant. The individual concentration of each substance shall exceed either:  I) The concentration specified in SABS 0265 Annex C  ii) Or where not specified the concentration (by mass) of  For solids or liquids ≥ 1% < 5% very corrosive substances, or ≥ 5% < 10% corrosive substances, or ≥ 5% < 10% severe eye irritant or ≥ 20% eye irritant substances  For gases ≥ 0.02% < 0.2% very corrosive substances, or ≥ 0.5% < 5% corrosive substances, or ≥ 0.5% < 5% severe eye irritant or ≥ 5% eye irritant substances  iii) By calculation where the sum of the quotients (percentage of each substance divided by the irritant limit) for each severe			

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			eye irritant substance +each eye irritant substance ≥ 1.			
82. Category 2B: Mildly irritating to the eye; reversible effects	For substances and tested mixtures, as for 2A but fully reversible within 7 days of observation.  For untested mixtures:  i) Where substances can be added, the sum of the concentrations of Category 1 skin and/or eye substances in the mixture is ≥ 1% but ≤ 3%.  ii) The sum of the concentrations of eye irritant substances is ≥ 10%.  iii) The sum of (10 x concentration of skin and/or eye category 1 substances) + (the concentration of eye irritants) is ≥ 10%.  iv) Where substances cannot be added, the sum of the concentration of irritant ingredients is ≥ 3%.					Category currently not used
83.		<b>Respiratory irritant</b>	A preparation is regarded as irritating to the respiratory system if it contains one or more substances classified or regarded as irritants. The individual concentration of each substance shall			Not GHS compliant  Category not included in the GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			exceed either: The concentration specified in SABS 0265 Annex C Or where not specified the concentration (by mass) of For solids or liquids $\geq 1\% < 5\%$ very corrosive substances, or $\geq 5\% < 10\%$ corrosive substances, or $\geq 5\% < 10\%$ severe irritant or $\geq 20\%$ respiratory irritant substances For gases $\geq 0.02\% < 0.2\%$ very corrosive substances, or $\geq 0.5\% < 5\%$ corrosive substances, or $\geq 0.5\% < 5\%$ severe irritant or $\geq 5\%$ respiratory irritant substances By calculation where the sum of the quotients (percentage of each substance divided by the respiratory irritant limit) for each respiratory irritant substance $\geq 1$ .			
<b>84. Respiratory or Skin Sensitisation</b>	Substances are categorised as Category 1 respiratory sensitisers or Category 1 skin sensitisers.	<b>Sensitisers</b>	Sensitising substances and preparations are classified as: Sensitisers to the respiratory system by			

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			inhalation Skin sensitisers.			
85. Category 1: Respiratory Sensitisers	<p>Substances and tested mixtures are classified in accordance with the following criteria:</p> <p>i) If there is evidence in humans that the substance can induce specific respiratory hypersensitivity; and/or</p> <p>ii) If there are positive results from an appropriate animal test.</p> <p>For untested mixtures if any individual respiratory sensitiser in the mixture has a concentration of <math>\geq 0.1\%</math> or <math>\geq 1\%</math> solid/liquid and <math>\geq 0.1\%</math> or <math>\geq 0.2\%</math> gaseous.</p>	<b>Respiratory system sensitisers</b>	<p>Classification is normally based on practical observation in humans. A substance or preparation shall be regarded as a respiratory sensitiser if it contains one or more substances classified as a respiratory sensitiser or skin sensitiser. The individual concentration limit for each substance shall exceed:</p> <p>i) The concentration limit specified in SABS 0265 Annex C</p> <p>ii) Where no limit is specified, the individual concentration limits are:</p> <p>For solids or liquids <math>\geq 1\%</math> respiratory system sensitisers or <math>\geq 1\%</math> respiratory and skin sensitisers</p> <p>For gases <math>\geq 0.2\%</math> respiratory system sensitisers or <math>\geq 0.2\%</math> respiratory and skin sensitisers.</p>			Complies with GHS
86. Category 1: Skin Sensitisers	Substances and tested mixtures are classified in accordance with the following	<b>Skin sensitisers</b>	A substance or preparation shall be regarded as a skin sensitiser if it			Complies with GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>criteria:</p> <p>i) If there is evidence in humans that the substance can induce sensitisation by skin contact in a substantial number of persons; or</p> <p>ii) If there are positive results from an appropriate animal test.</p> <p>For untested mixtures if any individual skin sensitizer in the mixture has a concentration of <math>\geq 0.1\%</math> or <math>\geq 1\%</math> solid/liquid/gas.</p>		<p>contains one or more substances classified as a skin sensitizer. The individual concentration limit for each substance shall exceed:</p> <p>i) The concentration limit specified in SABS 0265 Annex C</p> <p>ii) Where no limit is specified, the individual concentration limits are:</p> <p>For solids or liquids <math>\geq 1\%</math> skin sensitizers</p>			
<b>87. Germ Cell Mutagenicity</b>	The classification system provides for two different categories of germ cell mutagens to accommodate the weight of evidence available.	<b>Mutagenic</b>	A substance or preparation that presents a mutagenic risk is classified as a mutagen of category 1, 2 or 3.			

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
88. Category 1	<p>Chemicals known to induce heritable mutations or to be regarded as if they induce heritable mutations in the germ cells of humans.</p> <p>For untested mixtures if any individual category 1 mutagen in the mixture has a concentration of <math>\geq 0.1\%</math> solid/liquid/gas.</p>	Category 1	<p>A substance is category 1 if there is sufficient evidence to establish a casual association between human exposure to the substance and heritable damage.</p> <p>A preparation is a category 1 if it contains mutagenic substances in concentrations that equal or exceed:</p> <p>i) The concentrations specified in SABS 0265 Annex C</p> <p>ii) Where no limit is specified, the individual concentration limits are:</p> <p>For solids or liquids <math>\geq 0.1\%</math> type 1 mutagens</p> <p>For gases <math>\geq 0.1\%</math> type 1 mutagens.</p>			Complies with GHS
89. Category 1A	<p>Chemicals known to induce heritable mutations in germ cells of humans.</p> <p>Positive results from human epidemiological studies.</p>					Category currently not used
90. Category 1B	<p>Chemicals which should be regarded as if they induce heritable mutations in the germ cells of humans.</p> <p>Positive results from in vivo test</p>					Category currently not used

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	in mammals and results from test showing mutagenic effects in germ cells of humans without demonstration of transmission to progeny .					
91. Category 2	<p>Chemicals which cause concern for humans owing to the possibility that they may induce heritable mutations on the germ cells of humans.</p> <p>Positive evidence from experiments in mammals and/or in vitro experiments.</p> <p>For untested mixtures if any individual category 2 mutagen in the mixture has a concentration of <math>\geq 1\%</math> solid/liquid/gas.</p>	Category 2	<p>A substance is category 2 if there is sufficient evidence to provide a strong assumption that human exposure to the substance can result in the development of heritable genetic damage.</p> <p>A preparation is a category 2 if it contains mutagenic substances in concentrations that equal or exceed:</p> <ul style="list-style-type: none"> <li>i) The concentrations specified in SABS 0265 Annex C</li> <li>ii) Where no limit is specified, the individual concentration limits are:</li> </ul> <p>For solids or liquids <math>\geq 0.1\%</math> type 2 mutagens</p> <p>For gases <math>\geq 0.1\%</math> type 2 mutagens.</p>			<p>Not compliant with GHS</p> <p>SABS 0265 species concentration limit of category 2 mutagens in untested mixtures as <math>\geq 0.1\%</math></p>
92.		Category 3	A substance is category 3 if there is evidence from appropriate animal studies but the evidence is insufficient to warrant			Complies with Category 2 Germ cell mutagenicity in the GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			classification as a category 2 substance.  A preparation is a category 3 if it contains mutagenic substances in concentrations that equal or exceed:  i) The concentrations specified in SABS 0265 Annex C  II) Where no limit is specified, the individual concentration limits are:  For solids or liquids $\geq$ 1% type 3 mutagens  For gases $\geq$ 1% type 3 mutagens.			
<b>93. Carcinogenicity</b>	Chemical substances are allocated to one of two categories based on strength of evidence and additional considerations.	Carcinogenic	Carcinogenic substances and preparations are assigned to one of three categories.			
94. Category 1	Known or presumed carcinogens.  For untested mixtures if any individual category 1 carcinogen in the mixture has a concentration of $\geq$ 0.1%.	Category 1	Substances and preparations are assigned to category 1 primarily on the basis of epidemiological data and f:  i) There is sufficient evidence to establish a casual association between human exposure to the substance and the			Complies with GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			development of cancer. ii) The concentration limit specified in SABS 0265 Annex C iii) Where no limit is specified, the individual concentration limits are:  For solids or liquids $\geq 0.1\%$ type 1 carcinogens  For gases $\geq 0.1\%$ type 1 carcinogens			
95. Category 1A	Known to have carcinogenic potential for humans.					Category currently not used
96. Category 1B	Presumed to have carcinogenic potential for humans.					Category currently not used
97. Category 2	Suspected human carcinogens.  For untested mixtures if any individual category 2 carcinogen in the mixture has a concentration of $\geq 0.1\%$ or $\geq 1\%$ .	Category 2	Substances and preparations are assigned to category 2 primarily on the basis of animal test (positive result in two animal species or clear evidence in one animal species) and if :  i) There is sufficient evidence to provide a strong assumption that human exposure to the substance can result in the development of cancer.  ii) The concentration limit			Complies with GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			specified in SABS 0265 Annex C  iii) Where no limit is specified, the individual concentration limits are:  For solids or liquids $\geq 0.1\%$ type 2 carcinogens  For gases $\geq 0.1\%$ type 2 carcinogens			
98.		Category 3	Substances and preparations are assigned to category 3 primarily on the basis of animal tests and if it contains concentrations that:  There is available information suggests possible carcinogenic effects, but is inadequate for making a satisfactory assessment or if evidence of carcinogenicity from appropriate animal studies but the evidence is insufficient to warrant placing the substance in category 2.  i) The concentration limit specified in SABS 0265 Annex C  ii) Where no limit is specified, the individual concentration limits are:			Complies with Category 2 Carcinogenicity in the GHS

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			<p>For solids or liquids ≥ 1% type 3 carcinogens</p> <p>For gases ≥ 1% type 3 carcinogens.</p>			
<b>99. Reproductive Toxicity</b>	Chemical substances are allocated to one of two categories. Effects on reproductive ability or capacity and on developments are considered separate issues. Effects on lactation are allocated to a separate hazard category.	Toxic for reproduction	A substance or preparation that impairs fertility or cause developmental toxicity in humans is classified as a category 1, 2 or 3.			
100. Category 1	<p>Known or presumed human reproductive or developmental toxicant.</p> <p>For untested mixtures if any individual category 1 reproductive toxicant in the mixture has a concentration of ≥ 0.1% or ≥ 0.3%.</p>	Category 1	<p>A substance that is of category 1 toxicity for reproduction shows sufficient evidence to establish a casual relationship between human exposure to the substance and impaired fertility or it is known to cause developmental toxicity in humans.</p> <p>A preparation is a category 1 toxic to reproduction if it contains one or more category 1 toxic for reproduction fertility impairing substances, or developmental toxicity substances in concentrations equal to or exceeding:</p>			<p>Not fully compliant with GHS</p> <p>SABS 0265 concentration limit for untested mixtures of solid or liquids is ≥ 5%</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			i) The concentrations specified in SABS 0265 Annex C  ii) Where no limit is specified, the individual concentration limits are:  For solids or liquids $\geq 0.5\%$ type 1 substances  For gases $\geq 0.2\%$ type 1 substances.			
101. Category 1A	Known to have produced an adverse effect on reproductive ability or capacity or on development in humans.					Category currently not used
102. Category 1B	Presumed to produce an adverse effect on reproductive ability or capacity or on development in humans.					Category currently not used
103. Category 2	Suspected human reproductive or developmental toxicant.  For untested mixtures if any individual category 2 reproductive toxicant in the mixture has a concentration of $\geq 0.1\%$ or $\geq 3\%$ .	Category 2	A substance that is regarded as impairing fertility in humans is placed on category 2 if there is sufficient evidence to suggest that exposure of humans to the substance could result in impaired fertility .  A preparation is a category 2 if it contains substances in concentrations that equal or exceed:			Not fully compliant with GHS  SABS 0265 concentration limit for untested mixtures of solid or liquids is $\geq 5\%$

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			i) The concentrations specified in SABS 0265 Annex C  ii) Where no limit is specified, the individual concentration limits are:  For solids or liquids ≥ 0.5% type 2 substances  For gases ≥ 0.2% type 2 substances.			

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
104.		Category 3	<p>A substance that s cause for concern with regard to human fertility is placed in category 3 if the results of animal studies provide sufficient evidence to give rise to a strong suspicion of impaired fertility in the absence of toxic effects; or there is evidence of impaired fertility occurring at the same dose levels as other toxic effects but such evidence is not secondary, non-specific consequence of the other toxic effects and is insufficient to place the substance in category 2; and there are other relevant effects.</p> <p>A preparation is a category 3 if it contains substances in concentrations that equal or exceed:</p> <ul style="list-style-type: none"> <li>i) The concentrations specified in SABS 0265 Annex C</li> <li>ii) Where no limit is specified, the individual concentration limits are:                      For solids or liquids                      ≥ 5% type 3 substances                       For gases ≥ 1% type 3</li> </ul>			<p>Not compliant with GHS</p> <p>Category not used in the GHS</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			substances			
<b>105. Effects on lactation</b>	i) Absorption, metabolism, distribution and excretion studies that would indicate the likelihood the substance would be present in potentially toxic levels in breast milk; and/or  ii) Results of one or more generation studies in animals, which provide clear evidence of adverse effect in the offspring due to transfer in the milk or adverse effect on the quality of the milk; and/or  iii) Human evidence indicating a hazard to babies during the lactation period.					Category currently not used
<b>106. Specific Target Organ Systemic Toxicity – Single Exposure</b>	Substance are classified for immediate or delayed effects separately and placed in one of two categories, depending upon the nature and severity of the effect observed.					Not compliant  Hazard class currently not used
107. Category 1	Substances that have produced significant toxicity in humans or that, on the basis of evidence from studies in experimental animals, can be presumed to have the potential to produce significant toxicity in humans following single exposure.  Oral - ≤ 300 mg/kg body weight					Category currently not used

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	Dermal - $\leq 1\ 000$ mg/kg body weight Inhalation gas - $\leq 2\ 500$ ppm Inhalation vapour - $\leq 10$ mg/l Inhalation dust/mist/fumes - $\leq 1.0$ mg/l/4h For untested mixtures if any individual category 1 target organ systemic toxicant in the mixture has a concentration of $\geq 1\%$ or $\geq 10\%$ .					
108. Category 2	Substance that on the basis of evidence from studies in experimental animals can be presumed to have the potential to be harmful to human health following single exposure. Oral - $\geq 300 - 2\ 000$ mg/kg body weight Dermal - $\geq 1\ 000 - 2000$ mg/kg body weight Inhalation gas - $\geq 2\ 500 - 5\ 000$ ppm Inhalation vapour - $> 10 - 20$ mg/l Inhalation dust/mist/fumes - $\leq 1.0 - 5.0$ mg/l/4h For untested mixtures if any individual category 2 target organ systemic toxicant in the					Category currently not used

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	mixture has a concentration of $\geq 1\%$ or $\geq 10\%$ .					
<b>109. Specific Target Organ Systemic Toxicity – Repeat Exposure</b>	Substances are placed in one of two categories, depending upon the nature and severity of the effect observed.					Not compliant Hazard class currently not used
110. Category 1	<p>Substances that have produced significant toxicity in humans or that, on the basis of evidence from studies in experimental animals, can be presumed to have the potential to produce significant toxicity in humans following repeated exposure.</p> <p>Oral – 10 mg/kg body weight</p> <p>Dermal – 20 mg/kg body weight</p> <p>Inhalation gas – 50 ppm/6h/d</p> <p>Inhalation vapour – 0.2 mg/l/6h/d</p> <p>Inhalation dust/mist/fumes – 0.02 mg/l/6h/d</p> <p>For untested mixtures if any individual category 2 target organ systemic toxicant in the mixture has a concentration of <math>\geq 1\%</math> or <math>\geq 10\%</math>.</p>					Category currently not used
111. Category 2	Substance that on the basis of evidence from studies in experimental animals can be presumed to have the potential to be harmful to human health following repeated exposure.					Category currently not used

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>Oral – 10 – 100 mg/kg body weight</p> <p>Dermal – 20 – 200 mg/kgbody weight</p> <p>Inhalation gas – 50 – 250 ppm/6h/d</p> <p>Inhalation vapour – 0.2 – 1.0 mg/l/6h/d</p> <p>Inhalation dust/mist/fumes – 0.02 – 0.2 mg/l/6h/d</p> <p>For untested mixtures if any individual category 2 target organ systemic toxicant in the mixture has a concentration of <math>\geq 1\%</math> or <math>\geq 10\%</math>.</p>					
<b>112. Hazardous to the Aquatic Environment</b>	<p>The classification system consists of three acute classification categories and four chronic classification categories. The acute and chronic classification categories are applied independently. The criteria for classification of a substance in acute categories I to III are defined on the basis of the acute toxicity data only (<math>EC_{50}</math> and <math>LC_{50}</math>). The criteria for the classification of a substance into chronic categories combine two types of information, i.e. acute toxicity data and environmental fate data (biodegradability and bioaccumulation data).</p>	Dangerous to the aquatic environment	Acute toxicity based on environmental effects			

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
113. Category : Acute 1	<p>96hr LC<sub>50</sub> (fish) ≤ 1mg/l; and/or</p> <p>48 hr EC<sub>50</sub> (crustaceans) ≤ 1mg/l; and/or</p> <p>72 or 96 hr ErC<sub>50</sub> (algae or other aquatic plant) ≤ 1 mg/l</p> <p>Category: Acute I may be subdivided for some regulatory systems to include a lower band at L(E)C<sub>50</sub> ≤ 0.1 mg/l.</p> <p>For mixtures with classified ingredients the summation method:</p> <p>(Conc of Acute 1 x M**) &gt; 25%</p> <p>For mixtures with classified ingredients the summation method:</p> <p>(M** x 100 x Acute 1) + (10 x Acute 2) + Acute 3 &gt; 25%</p>	<b>Very toxic</b>	<p>Environmental effects are determined by:</p> <p>i) The LC<sub>50</sub> is the dose of substance or preparation that is most likely to cause the death within 96h of 50% of an exposed fish population.</p> <p>ii) The EC<sub>50</sub> is the dose of substance or preparation that is most likely to affect but not kill within 48 hours, 50% of an exposed daphnia population.</p> <p>iii) The IC<sub>50</sub> is that does of substance or preparation that is most likely within 72 hours to inhibit biomass formulations of 50% of an exposed algae population.</p> <p>A substance or preparation is classified as very toxic to the aquatic environment if the following criteria for acute toxicity are met:</p> <p>96h LC<sub>50</sub> ≤ 1 mg/l</p> <p>48 h EC<sub>50</sub> ≤ 1 mg/l</p> <p>72h IC<sub>50</sub> ≤ 1 mg/l</p> <p>ii) the substance is not</p>			<p>Toxicity data for substances tested complies with GHS</p> <p>Methodology for classifying mixtures is different</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
			readily degradable  iii) or the log PoW $\geq 3$ unless the experimentally determined BCF $\leq 100$ .			
114. Category : Acute 2	<p>96hr LC<sub>50</sub> (fish) &gt;1 - <math>\leq 10</math>mg/l; and/or</p> <p>48 hr EC<sub>50</sub> (crustaceans) &gt;1 - <math>\leq 10</math>mg/l; and/or</p> <p>72 or 96 hr ErC<sub>50</sub> (algae or other aquatic plant) &gt;1 - <math>\leq 10</math> mg/l</p> <p>For mixtures with classified ingredients the summation method: <math>(\text{Conc of Acute 1}) \times M \times 10 + (\text{Conc of Acute 2}) &gt; 25\%</math></p> <p>For mixtures with tested ingredients the additivity formula reveals L(E)C<sub>50</sub> &gt; 1 mg/l - <math>\leq 10</math> mg/l</p>	<b>Toxic</b>	<p>A substance or preparation is classified as toxic to the aquatic environment if the following criteria for acute toxicity are met:</p> <p>96h LC<sub>50</sub> &gt; 1 <math>\leq 10</math> mg/l</p> <p>48 h EC<sub>50</sub> &gt; 1 <math>\leq 10</math> mg/l</p> <p>72h IC<sub>50</sub> &gt; 1 <math>\leq 10</math> mg/l</p> <p>ii) the substance is not readily degradable</p> <p>iii) or the log PoW <math>\geq 3</math> unless the experimentally determined BCF <math>\leq 100</math>.</p>			<p>Toxicity data for substances tested complies with GHS</p> <p>Methodology for classifying mixtures is different</p>
115. Category : Acute 3	<p>LC<sub>50</sub> (fish) &gt;10 - <math>\leq 100</math>mg/l; and/or</p> <p>48 hr EC<sub>50</sub> (crustaceans) &gt;10 - <math>\leq 100</math>mg/l; and/or</p> <p>72 or 96 hr ErC<sub>50</sub> (algae or other aquatic plant) &gt;10 - <math>\leq 100</math> mg/l.</p> <p>Some regulatory systems may extend this range beyond an L(E)C<sub>50</sub> of 100 mg/l through the</p>	<b>Harmful</b>	<p>A substance or preparation is classified as harmful to the aquatic environment if the following criteria for acute toxicity are met:</p> <p>96h LC<sub>50</sub> &gt; 10 <math>\leq 100</math> mg/l</p> <p>48 h EC<sub>50</sub> &gt; 10 <math>\leq 100</math> mg/l</p> <p>72h IC<sub>50</sub> &gt; 10 <math>\leq 100</math> mg/l</p> <p>ii) the substance is not</p>			<p>Toxicity data for substances tested complies with GHS</p>

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>L(E)C<sub>50</sub> of 100 mg/l through the introduction of another category .</p> <p>For mixtures with classified ingredients the summation method:</p> <p><math>(M^{**} \times 100 \times \text{Acute } 1) + (10 \times \text{Acute } 2) + \text{Acute } 3 &gt; 25\%</math></p> <p>For mixtures with tested ingredients the additivity formula reveals</p> <p>L(E)C<sub>50</sub> &gt; 10 mg/l - ≤ 100 mg/l</p>		readily degradable			
116. Category : Chronic I	<p>i) 96hr LC<sub>50</sub> (fish) ≤1 mg/l; and/or</p> <p>ii) 48 hr EC<sub>50</sub> (crustaceans) ≤1 mg/l; and/or</p> <p>iii) 72 or 96 hr ErC<sub>50</sub> (algae or other aquatic plant) ≤ 1 mg/l</p> <p>iv) the substance is not readily degradable and/or the log K<sub>ow</sub> ≥ 4 (unless the experimentally determined BCF &lt;500).</p> <p>For mixtures with classified ingredients the summation method:</p> <p><math>(\text{Conc of Chronic } 1 \times M^{**}) &gt; 25\%</math></p>					Category currently not used
117. Category : Chronic 2	<p>i) 96hr LC<sub>50</sub> (fish) &gt;1 - ≤10 mg/l; and/or</p> <p>ii) 48 hr EC<sub>50</sub> (crustaceans) &gt;1</p>					Category currently not used

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>- ≤10 mg/l; and/or</p> <p>iii) 72 or 96 hr ErC<sub>50</sub> (algae or other aquatic plant) &gt; 1 - ≤ 10 mg/l</p> <p>iv) the substance is not readily degradable and/or the log K<sub>ow</sub> ≥ 4 (unless the experimentally determined BCF &lt;500).</p> <p>v) the chronic toxicity NOECs are &gt; 1mg/l.</p> <p>For mixtures with classified ingredients the summation method:</p> <p>(Conc of Chronic 1) x M** x 10 + (Conc of Chronic 2) &gt; 25%</p>					
118. Category: Chronic 3	<p>i) 96hr LC<sub>50</sub> (fish) &gt;10 - ≤100 mg/l; and/or</p> <p>ii) 48 hr EC<sub>50</sub> (crustaceans) &gt;10 - ≤ 100 mg/l; and/or</p> <p>iii) 72 or 96 hr ErC<sub>50</sub> (algae or other aquatic plant) &gt; 10 - ≤ 100 mg/l</p> <p>iv) the substance is not readily degradable and/or the log K<sub>ow</sub> ≥ 4 (unless the experimentally determined BCF &lt;500).</p> <p>v) the chronic toxicity NOECs</p>					Category currently not used

GHS Hazard Criteria		SABS 0265 Hazard Criteria		SABS 0228 Hazard Criteria / IMDG Code		GHS Compliance
Hazard	Criteria	Hazard	Criteria	Hazard	Criteria	
	<p>are &gt; 1mg/l.</p> <p>For mixtures with classified ingredients the summation method:</p> <p>(Conc of Chronic 1) x M** x 10                      + (Conc of Chronic 2) x 210 +                      (Conc of chronic 3) &gt; 25%</p>					
119. Category 4	<p>Poorly soluble substances for which no acute toxicity is recorded at levels up to the water solubility and which are not rapidly degradable and have a log K<sub>ow</sub> ≥ 4, indicating a potential to bioaccumulate. Includes an experimentally determined BCF &lt; 500 or a chronic toxicity NOECs &gt; 1 mg/l, or evidence of rapid degradation in the environment.</p> <p>For mixtures with classified ingredients the summation method:</p> <p>Chronic 1 + Chronic 2 +                      Chronic 3 + Chronic 4 &gt; 25%</p>					Category currently not used
	Note: M** is the multiplying factor for highly toxic components of mixtures					
	L(E)C <sub>50</sub> Value		Multiplying Factor (M)			
	0.1 - ≤ 1		1			
	0.01 - ≤ 0.1		10			
	0.001 - ≤ 0.01		100			
	0.0001 - ≤ 0.001		1 000			
	0.00001 - ≤ 0.0001		10 000			