



The technical association
of the European lubricants
industry



The technical committee
of petroleum additive
manufacturers in Europe

ATIEL/ATC
Generic Exposure
Scenarios

Document 5a: GES Use Group A (industrial)

This spreadsheet provides different ATIEL-ATC Generic Exposure Scenarios (GESs) for use Group A, covering the formulation of additive packages, lubricants and greases.

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GES Use Group A (ind)

Purpose

The purpose of this spreadsheet is to provide you with the different ATIEL-ATC Generic Exposure Scenarios (GESs) for use Group A, covering the formulation of additive packages, lubricants and greases.

What is in this spreadsheet

In this spreadsheet you will find three tabs to assist you with completing your GESs. These are:

- a. GES A(i) AddPack Exposure Scenario with Nil or Low Sensitiser Concentration (*for formulated AddPacks*)
- b. GES A(i) AddPack Exposure Scenario with High Sensitiser Concentration (*for formulated AddPacks*)
- c. GES A(i) Lube Exposure Scenario with Nil or Low Sensitiser Concentration (*for formulated Lubricants*)

Other spreadsheets

In a separate spreadsheet you will find the values to be inserted in the environmental section of the GES depending on the RDS and uses.

A number of other spreadsheets and documents are available on the ATIEL website to assist you with your task.

ATIEL/ATC Use Group A (ind) - AddPack Generic Exposure Scenario based on boundary conditions including Nil or Low Sensitiser Concentration

Section 1	Exposure Scenario Title
Title	Formulation & (re)packing of substances and mixtures [GEST2_] - Industrial [G26]
Use Descriptor	Industrial (SU3, SU10) Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15 Environmental Release Categories: ERC2 Specific Environmental Release Categories: ATIEL-ATC SPERC 2.Ai-a.v1
Processes, tasks, activities covered	Industrial formulation of lubricant additives, lubricants and greases. Includes material transfers, mixing, large and small scale packing, sampling, maintenance [ATU11]
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	Control of worker exposure
Physical form of product	Liquid, vapour pressure < 0.5 kPa [OC3].
Concentration of substance in product	Covers percentage substance/product up to 100 % (unless stated differently) [G13a].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Contributing Scenarios	Risk Management Measures
General measures applicable to all activities [CS135]	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop [E3]
	Use suitable eye protection. [PPE26] Avoid direct eye contact with product also via contamination on hands. [E73]
General exposures [CS1]. ; Use in contained systems [CS38]. Elevated Temperature [CS111] PROC2	No other specific measures identified. [E120]
Mixing operations (closed systems) [CS29]. ; Batch processes at elevated temperatures [CS136]. PROC3	Provide extract ventilation to points where emissions occur. [E54]
Mixing operations (open systems) [CS30]. ; Batch processes at elevated temperatures [CS136].; PROC4 PROC5	Provide extract ventilation to points where emissions occur. [E54] Avoid carrying out activities involving exposure for more than 4 hours. [OC28]
Mixing operations (open systems) [CS30]. ; PROC4 PROC5	Provide extract ventilation to points where emissions occur. [E54]
Process sampling [CS2]. PROC4, PROC8b	Avoid carrying out activities involving exposure for more than 1 hour. [OC27] Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]
Bulk transfers [CS14]. ; Dedicated facility [CS81] PROC8b	Avoid carrying out activities involving exposure for more than 4 hours [OC28]Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. [PPE18]
Drum/batch transfers [CS8]. Dedicated facility [CS81] PROC8b	Provide extract ventilation to points where emissions occur. [E54]
Drum/batch transfers [CS8]. Non-dedicated facility [CS82] PROC8a	Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour). [E40] Avoid carrying out activities involving exposure for more than 1 hour. [OC27] Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. [PPE18]
Equipment cleaning and maintenance [CS39]. PROC8a PROC8b	Drain down and flush system prior to equipment break-in or maintenance. [E55] Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. [PPE18] Retain drain downs in sealed storage pending disposal or for subsequent recycle. [ENVT4] Clear spills immediately. [C&H13]
Drum and small package filling [CS6]. PROC9	Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour). [E40] Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]
Laboratory activities [CS36]. PROC15	Avoid carrying out activities involving exposure for more than 4 hours. [OC28]
Storage [CS67] PROC1, PROC2	Store substance within a closed system. [E84]
Section 2.2	Control of environmental exposure
Amounts used	Control of environmental exposure
EU tonnage (tonnes per year) [ATE09]	<i>insert value from Environmental GES values table</i>
Fraction of EU tonnage used in region [A1]	1
Fraction of Regional tonnage used locally [A3]	1
Frequency and duration of use	Control of environmental exposure

Section 2.2		Control of environmental exposure
Emission days (days/year) [FD4]		300
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EF1]		10
Local marine water dilution factor [EF2]		100
Other given operational conditions affecting environmental exposure		
Negligible wastewater emissions as process operates without water contact. [OOC20]		
Release fraction to air from process (after typical onsite RMMs) [ATE11]		5.0 E-07
Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): [ATE12]		<i>insert value from Environmental GES values table</i>
Release fraction to soil from process (after typical onsite RMMs): [ATE13]		0
Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release estimates used [TCS1]		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil		
Treat air emission to provide a typical removal efficiency of (%): [TCR7]		70
Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]		
User sites are assumed to be provided with oil/water separators or equivalent and for waste water to be discharged via public sewer system. [ATE14]		
Organisational measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils [OMS2].		
Sludge should be incinerated, contained or reclaimed [OMS3].		
Conditions and measures related to municipal sewage treatment plant		
Estimated substance removal from wastewater via domestic sewage treatment (%) - F_{STP} [STP3]		<i>insert value from Environmental GES values table</i>
Assumed domestic sewage treatment plant flow (m^3/d) [STP5]		2.00E+03
Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day): [ATE15]		<i>insert value from Environmental GES values table</i>
Conditions and measures related to external treatment of waste for disposal		
External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3].		
Conditions and measures related to external recovery of waste		
External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]		
Other environmental control measures additional to above		
None [ATE16]		
Section 3		Exposure Estimation
3.1. Health		
The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product. [ATH01]		
3.2. Environment		
Used ECETOC TRA model. [EE1]		
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites: thus scaling may be necessary to define appropriate site-specific risk management measures. [DSU1]		
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). [DSU4]		
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. [DSU8]		
For further information see www.ATIEL.org/REACH_GES . [ATG02]		

ATIEL/ATC Use Group A (ind) - AddPack Generic Exposure Scenario based on boundary conditions including High Sensitiser Concentration	
Section 1	Exposure Scenario Title
Title	Formulation of additive packages, lubricants & greases [GEST2_I] - Industrial [G26]
Use Descriptor	Industrial (SU3, SU10) Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9, PROC15 Environmental Release Categories: ERC2 Specific Environmental Release Categories: ATIEL-ATC SPERC 2.Ai-a.v1
Processes, tasks, activities covered	Industrial formulation of lubricant additives, lubricants and greases. Includes material transfers, mixing, large and small scale packing, sampling, maintenance. [ATU11]
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa [OC3].
Concentration of substance in product	Covers percentage substance/product up to 100 % (unless stated differently) [G13a].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not > 20°C above ambient [G15]; (unless stated diiferently) [G13] Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures
General measures applicable to all activities [CS135]	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general / local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean / flush equipment, where possible, prior to maintenance. [ATG5a] Where there is potential for exposure: Restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; clear up spills immediately and dispose of wastes safely. [ATG5b] Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance. [ATG5c] Use suitable eye protection. [PPE26] Avoid direct eye contact with product also via contamination on hands. [E73]
General exposures [CS1]. ; Use in contained systems [CS38]. Elevated Temperature [CS111] PROC2	Handle substance within a predominantly closed system provided with extract ventilation. [E49]
Mixing operations (closed systems) [CS29]. ; Batch processes at elevated temperatures [CS136]. PROC3	Handle substance within a predominantly closed system provided with extract ventilation. [E49]
Process sampling [CS2]. PROC8b	Use a sampling system designed to control exposure. [E89]
Bulk transfers [CS14]. ; Dedicated facility [CS81] PROC8b	Ensure material transfers are under containment or extract ventilation. [E66]
Drum/batch transfers [CS8]. Dedicated facility [CS81] PROC8b	Provide extract ventilation to points where emissions occur. [E54]
Equipment cleaning and maintenance [CS39]. PROC8a PROC8b	Drain down and flush system prior to equipment break-in or maintenance. [E55] Retain drain downs in sealed storage pending disposal or for subsequent recycle. [ENV4] Clear spills immediately. [C&H13]
Drum and small package filling [CS6]. PROC9	Ensure material transfers are under containment or extract ventilation. [E66]
Laboratory activities [CS36]. PROC15	Handle in a fume cupboard or implement suitable methods to minimise exposure. [E12]
Storage [CS67] PROC1, PROC2	Store substance within a closed system. [E84]
Section 2.2	Control of environmental exposure
Amounts used	
EU tonnage (tonnes per year) [ATE09]	<i>insert value from Environmental GES values table</i>
Fraction of EU tonnage used in region [A1]	1
Fraction of Regional tonnage used locally [A3]	1
Frequency and duration of use	
Emission days (days/year) [FD4]	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1]	10
Local marine water dilution factor [EF2]	100
Other given operational conditions affecting environmental exposure	
Negligible wastewater emissions as process operates without water contact. [OOC20]	

Section 2.2		Control of environmental exposure
Release fraction to air from process (after typical onsite RMMs) [ATE11]		5.0 E-07
Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): [ATE12]	<i>insert value from Environmental GES values table</i>	
Release fraction to soil from process (after typical onsite RMMs): [ATE13]		0
Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release estimates used [TCS1]		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil		
Treat air emission to provide a typical removal efficiency of (%): [TCR7]		70
Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]		
User sites are assumed to be provided with oil/water separators or equivalent and for waste water to be discharged via public sewer system. [ATE14]		
Organisational measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils [OMS2].		
Sludge should be incinerated, contained or reclaimed [OMS3].		
Conditions and measures related to municipal sewage treatment plant		
Estimated substance removal from wastewater via domestic sewage treatment (%) - F_{STP} [STP3]	<i>insert value from Environmental GES values table</i>	
Assumed domestic sewage treatment plant flow (m ³ /d) [STP5]		2.00E+03
Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day): [ATE15]	<i>insert value from Environmental GES values table</i>	
Conditions and measures related to external treatment of waste for disposal		
External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3].		
Conditions and measures related to external recovery of waste		
External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]		
Other environmental control measures additional to above		
None [ATE16]		
Section 3		Exposure Estimation
3.1. Health		
The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product. [ATH01]		
3.2. Environment		
Used ECETOC TRA model. [EE1]		
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites: thus scaling may be necessary to define appropriate site-specific risk management measures. [DSU1]		
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). [DSU4]		
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. [DSU8]		
For further information see www.ATIEL.org/REACH_GES . [ATG02]		

ATIEL/ATC Use Group A (ind) - Lube Generic Exposure Scenario based on boundary conditions including Nil or Low Sensitiser Concentration

Section 1	Exposure Scenario Title
Title	Formulation of additive packages, lubricants & greases [GEST2_I] - Industrial [G26]
Use Descriptor	Industrial (SU3, SU10) Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15 Environmental Release Categories: ERC2 Specific Environmental Release Categories: ATIEL-ATC SPERC 2.Ai-l.v1
Processes, tasks, activities covered	Industrial formulation of lubricant additives, lubricants and greases. Includes material transfers, mixing, large and small scale packing, sampling, maintenance. [ATU11]
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid, vapour pressure < 0.5 kPa [OC3].
Concentration of substance in product	Covers percentage substance/product up to 100 % (unless stated differently). [G13a]
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently). [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Covers percentage substance in the product up to 100 % (unless stated differently). [G13]
Contributing Scenarios	
Risk Management Measures	
General measures applicable to all activities [CS135]	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. [E3]
	Use suitable eye protection. [PPE26] Avoid direct eye contact with product also via contamination on hands. [E73]
General exposures. [CS1] Use in contained systems. [CS38] Elevated Temperature. [CS111] PROC2	No other specific measures identified. [E120]
Mixing operations (closed systems). [CS29] Batch processes at elevated temperatures. [CS136] PROC3	Provide extract ventilation to points where emissions occur. [E54]
Mixing operations (open systems). [CS30] Batch processes at elevated temperatures. [CS136] PROC4 PROC5	Provide extract ventilation to points where emissions occur. [E54] Avoid carrying out activities involving exposure for more than 4 hours. [OC28]
Mixing operations (open systems). [CS30] PROC4 PROC5	Provide extract ventilation to points where emissions occur [E54].
Process sampling [CS2]. PROC4, PROC8b	Avoid carrying out activities involving exposure for more than 1 hour. [OC27] Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]
Bulk transfers. [CS14] Dedicated facility [CS81] PROC8b	Avoid carrying out activities involving exposure for more than 4 hours. [OC28] Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. [PPE18]
Drum/batch transfers [CS8] Dedicated facility [CS81] PROC8b	Provide extract ventilation to points where emissions occur. [E54]
Drum/batch transfers. [CS8]. Non-dedicated facility. [CS82] PROC8a	Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour). [E40] Avoid carrying out activities involving exposure for more than 1 hour. [OC27] Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. [PPE18]
Equipment cleaning and maintenance [CS39]. PROC8a PROC8b	Drain down and flush system prior to equipment break-in or maintenance. [E55] Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls. [PPE18] Retain drain downs in sealed storage pending disposal or for subsequent recycle. [ENVT4] Clear spills immediately. [C&H13]
Drum and small package filling. [CS6] PROC9	Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour). [E40] Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. [PPE17]
Laboratory activities. [CS36] PROC15	Avoid carrying out activities involving exposure for more than 4 hours. [OC28]
Storage. [CS67] PROC1, PROC2	Store substance within a closed system. [E84]
Section 2.2	Control of environmental exposure
Amounts used	
EU tonnage (tonnes per year) [ATE09]	<i>insert value from Environmental GES values table</i>
Fraction of EU tonnage used in region [A1]	0.1
Fraction of Regional tonnage used locally [A3]	0.1
Frequency and duration of use	
Emission days (days/year) [FD4]	300

Section 2.2		Control of environmental exposure
Environmental factors not influenced by risk management		
Local freshwater dilution factor [EF1]		10
Local marine water dilution factor [EF2]		100
Other given operational conditions affecting environmental exposure		
Negligible wastewater emissions as process operates without water contact. [OOC20]		
Release fraction to air from process (after typical onsite RMMs) [ATE11]		5.0 E-05
Release fraction to wastewater from process (after typical onsite RMMs and before (municipal) sewage treatment plant): [ATE12]	<i>insert value from Environmental GES values table</i>	
Release fraction to soil from process (after typical onsite RMMs): [ATE13]		0
Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release estimates used. [TCS1]		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil		
Treat air emission to provide a typical removal efficiency of (%): [TCR7]		70
Prevent discharge of undissolved substance to or recover from onsite wastewater. [TCR14]		
User sites are assumed to be provided with oil/water separators or equivalent and for waste water to be discharged via public sewer system. [ATE14]		
Organisational measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils [OMS2].		
Sludge should be incinerated, contained or reclaimed [OMS3].		
Conditions and measures related to municipal sewage treatment plant		
Estimated substance removal from wastewater via domestic sewage treatment (%) - F_{STP} [STP3]	<i>insert value from Environmental GES values table</i>	
Assumed domestic sewage treatment plant flow (m^3/d) [STP5]		2.00E+03
Maximum allowable site quantity (MSafe) based on OCs and RMMs as above (kg/day): [ATE15]	<i>insert value from Environmental GES values table</i>	
Conditions and measures related to external treatment of waste for disposal		
External treatment and disposal of waste should comply with applicable local and/or national regulations. [ETW3].		
Conditions and measures related to external recovery of waste		
External recovery and recycling of waste should comply with applicable local and/or national regulations. [ERW1]		
Other environmental control measures additional to above		
None [ATE16]		
Section 3		Exposure Estimation
3.1. Health		
The Risk Management Measures/Operational Conditions that are identified in the Exposure Scenario are the outcome of a quantitative and qualitative assessment that covers this product. [ATH01]		
3.2. Environment		
Used ECETOC TRA model. [EE1]		
Section 4		Guidance to check compliance with the Exposure Scenario
4.1. Health		
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23]		
4.2. Environment		
Guidance is based on assumed operating conditions which may not be applicable to all sites: thus scaling may be necessary to define appropriate site-specific risk management measures. [DSU1].		
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html). [DSU4]		
If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required. [DSU8]		
For further information see www.ATIEL.org/REACH_GES . [ATG02]		